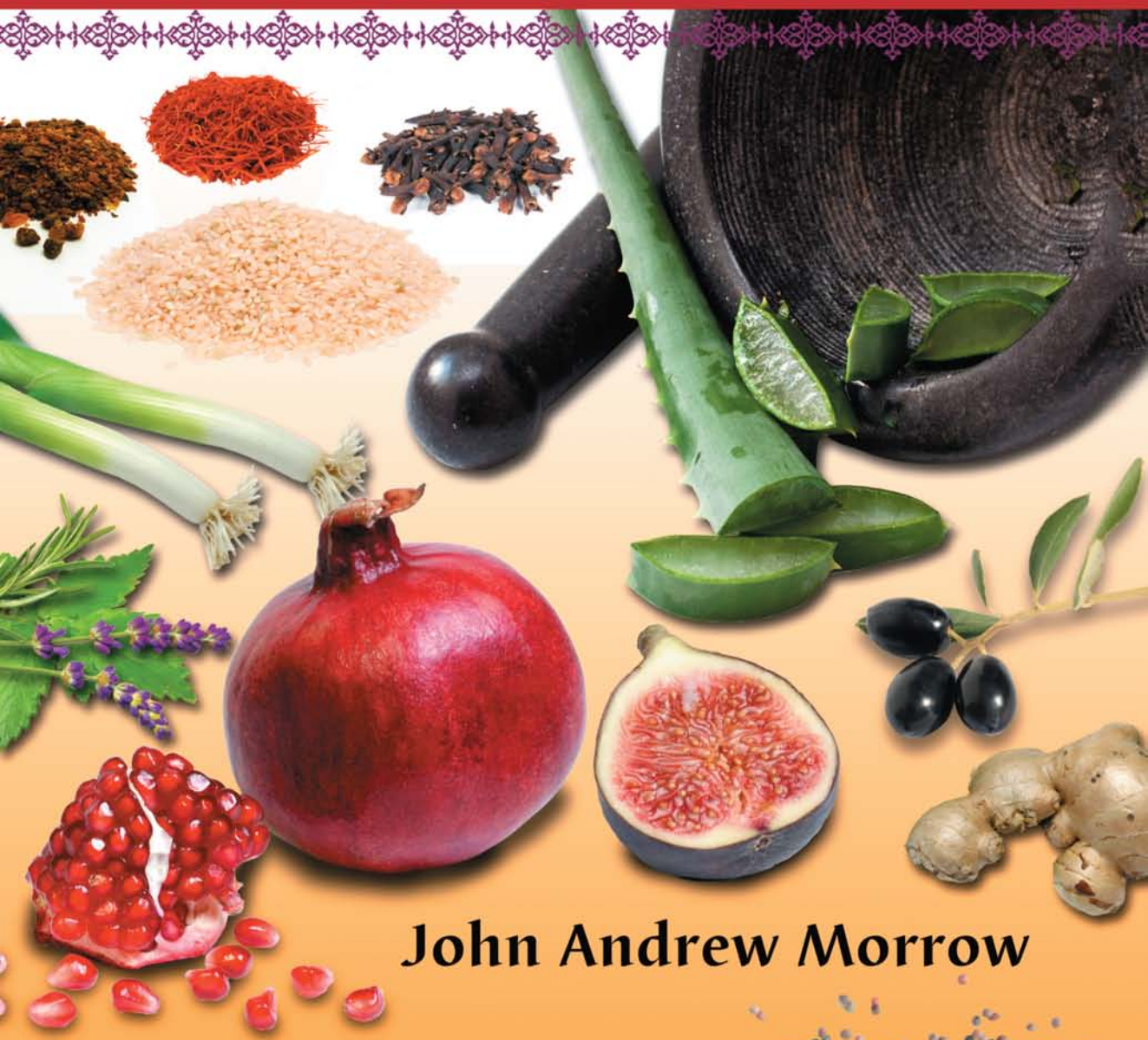
Encyclopedia of Islamic Herbal Medicine



John Andrew Morrow

al-Bāqir prescribed cyclamen for his bondmaid saying it was beneficial for everything caused by the spirits such as possession [*al-mass*], mental disorder, madness, the falling sickness, ensnarement, and so forth.[1]

Issues in Identification: It is the consensus that *bukhūr* is Arabic for incense, *Cyclamen* is *sakawka',* and *Cylamen europaeum* is *bukhūr Maryam*. As Nehmé explains, Cyclamen is known in Modern Standard Arabic as *bukhūr Maryam*, *duwayk al-jabal*, *sīdū*, and *qarn al-ghazāl*.[2] *Cyclamen europaeum* and *Cyclamen hederifolium* are distributed over Southern Europe, North Africa, and Western Asia.

Properties and Uses: Cyclamen is a poisonous plant. It must only be used with extreme caution under the guidance of a trained professional. Internally, the rootstock is used as a drastic purgative and cathartic. Its effects are frequently severe, causing violent emesis, hypercatharsis, intestinal inflammation, cold sweats, tinnitus aurium, and spasmodic movements, which sometimes result in death.

The fresh root is also used in a homeopathic remedy. Externally, a cyclamen ointment made from the fresh tubers is applied to the bowels to expel worms in children, to cause enemis in adults, to cause purging, and to increase urinary discharge.

Scientific Studies: *Analgesic and Anti-inflammatory Activity* According to a study conducted by Bologna University, the anti-inflammatory and analgesic properties of *Cyclamen repandum* might be the result of its saponin content.[3]

Antispermatogenic Activity In a study of Yugoslav plants, the saponins of *Cyclamen persicum* were found to be spermicidal, suggesting their potential use as a natural spermicide.[4]

Anticancer Activity Cyclamen persicum also shows potential as a tumor inhibitor.[5]

Cyclamen Notes

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Date/*Tamr, Ruṭb, 'Ajwah, Balaḥ, Nakhl*

Family: Palmaea

Botanical Name: *Phoenix dactylifera*

Common Names: *English* Date palm; *French* Dattier; *Spanish* Dátil; *German* Dattel; *Urdu/Unānī* Khurma, Khajur, Chuhara; *Modern Standard Arabic* Tamr, Ruṭb, 'Ajwah, Balaḥ

Safety Rating: Generally Safe Dates are generally considered safe for most people.

Prophetic Prescription: Dates and palms are mentioned over twenty times in the Qur'ān (2:269; 6:99; 6:141; 13:4; 16:11; 16:67; 18:32; 19:23; 19:25; 20:71; 23:19; 26:148; 36:34; 50:10; 54:13; 54:20; 55:11; 55:68; 59:5; 69:7; 80:29; 111:5). Consequently, the Prophet and the Imāms of *Ahl al-Bayt* held the date tree and its fruit in high esteem. The Messenger of Allāh said, "There is a tree which is similar to a Muslim [in goodness], and that is the palm tree."[1] He told his followers to, "Treat your aunts with honor: the palm tree and the dried grape."[2] He also said, "The palm tree and the pomegranate were created with what was left over from the dust of Adam."[3]

According to the Prophet, "The best of all your dates is that of *al-barnī*, which drives out disease."[4] Imām 'Alī ibn Abī Ṭālib said, "The best of dates are known as *al-barnī*."[5] In a similar tradition, Imām Ja'far al-Ṣādiq said, "The best of all your dates is *al-barnī*. It removes disease and there is no disease in it. It removes fatigue. It fills [the stomach]. It removes phlegm. There is goodness in each one [i.e., *barnī*]."[6]

Imām Mūsā al-Kāẓim prescribed eating *barnī* dates on an empty stomach and not drinking water for cases of dampness (*al-ruṭūbah*) and eating *barnī* dates on an empty stomach and drinking water after it in cases of excessive dryness (*al-yubs*).[7]

The Messenger of Allāh encouraged the consumption of dates as a staple. According to both Bukhārī and Aḥmad, dates and water were the basis of the Prophet's diet."[8] He said, "The date is the best breakfast for a believer."[9] He used to eat melon with fresh dates, saying that "One drives out heat, the other, cold."[10] It is also reported that he said, "When dates are in season, congratulate me: when they are out of season, sympathize."[11] He used to break his fast with fresh dates and, if there were none, with dried dates (*tamarāt*).[12] The Prophet also used to rub dates in the mouths of newborn babies.[13] He said, "He

who finds a date, let him break his fast with it. And he who finds no date, let him break his fast with water. For verily, that is purity."[14]

The Prophet Muḥammad said that the "'*Ajwah* date is an excellent remedy."[15] The Prophet said, "Whoever starts his day with seven '*Ajwah dates*, will not be harmed that day by poison or witchcraft."[16] He said that the "'*Ajwah* is from Paradise, and it contains an antidote against poison (*al-samm*)."[17] He also explained that "The best part of the date is its tip."[18] According to Sūyūṭī, the '*ajwah* is a type of date from Medina which is larger than the Sihānī, dark in color, and which was planted by the Prophet himself.[19]

The Prophet also prescribed dates for his companion Sa'd, who suffered from "coolness of the heart." The Prophet told him that he was suffering from heart sickness, told him to see al-Ḥārith b. Kaladah, who was a physician, telling him to take seven '*ajwah* dates from Medina and grind them with their kernels and then put them into his mouth.[20]

The Messenger of Allāh recommended dates for a host of medical reasons. He said, "Dates are a fruit which seed came from Paradise. They are an antidote for poison, a rich source for increasing semen, and drinking the water of soaked Madīnah dates breaks the spell of witchcraft."[21] He recommended people to "Eat fresh dates (*balaḥ*), with dried dates (*tamr*), for when Satan regards the son of Adam eating these two, he says: the son of Adam remained until he has eaten the new with the old."[22]

The Messenger of Allāh recommended the consumption of dates by pregnant women, saying, "Your women-folk should eat dates, for whoever makes dates their food will produce children with ease."[23] He stated, "Fresh dates are the best food for a woman after she gives birth."[24] Imām al-Ṣādiq explained that "Feed your women *barnī* dates after they give birth so that they can produce more milk for your children."[25] He also said that "There is no better medicine for a woman who has just delivered than fresh dates [*ruṭb*]."[26] The Prophet is also reported to have said, "If one of your women has given birth to a child, see that the first thing that she eats are fresh dates [*ruṭb*]. Verily, Maryam [Mary] did not eat anything better than these when she gave birth to 'Isā [Jesus]."[27]

Imām 'Alī al-Riḍā said, "He who wishes to prevent pain in his lower parts as well as the wind of hemorrhoids, he should eat seven dates covered in cow butter every night."[28] Imām Ja'far al-Ṣādiq recommended abstaining from dates because the Prophet made Imām 'Alī abstain from eating them when he was ill.[29] The Prophet also recommended abstaining from dates when suffering from inflammation of the eyes.[30]

The Messenger of Allāh recommended the use of dates to treat parasitic infections, saying, "Every date on an empty stomach means the death of a worm."[31] Imām 'Alī ibn Abī Ṭālib said and Imām Ja'far al-Ṣādiq said, "Whoever eats seven '*ajwah* dates before sleeping will kill the worms in his belly."[32] "Eat '*ajwah*" he said, "for the dried date of the '*ajwah* will cause them to die — and eat it on an empty stomach."[33] He has taken these instructions from the Prophet who had said, "Take dates early in the morning. They kill worms."[34]

Issues in Identification: It is the consensus that *nakhl* means date palm, *bisr* means unfertilized female date, *balaḥ* means fertilized unripe date, *ruṭab* mean fresh dates, *tamr* means dried dates, and '*ajwah* means mashed dates in Arabic. Dates have been widely cultivated in Arabia since antiquity.

Properties and Uses: Dates have numerous medicinal properties. They are high in natural aspirin and they have a laxative effect. The regular consumption of dates is linked to lower rates of certain cancers, particularly pancreatic cancer. Dates have the best nutrient score among fresh fruits as well as the highest concentration of polyphenols among the dried fruits.[35]

Dates are fat free, sodium free, cholesterol free, and are one of the best sources of fiber. It comes as no surprise, then, that Ibn Buṭlān would state that sweet, fresh dates help the intestines.[36] One serving of dates provides 240 mg of potassium, which is even more than bananas. Furthermore, dates are packed with vitamin B-complex and magnesium. Research suggests that this combination of nutrients may reduce the risk of heart disease, cancer, hypertension, diabetes and help reduce LDL cholesterol.

Dates are used to treat intestinal disturbances, children's diarrhea, dysentery, as a laxative, and as an aphrodisiac. They contain stimulants that strengthen the muscles of the uterus in the last months of pregnancy, helping with the dilation of the uterus at the time of delivery and reducing bleeding after delivery. The Prophet has emphasized the nutritional value of dates and their effectiveness in the growth of the fetus. Dates are particularly suited for women who are breast-feeding as they contain elements which alleviate depression, and enrich breast milk.

Scientific Studies: *Antioxidative Activity* In a study conducted by Kuwait University, the antioxidant and antimutagenic properties of fruits of the date palm were studied for the first time in

vitro.[37] According to the study, there was a dose-dependent inhibition of superoxide and hydroxyl radicals by an aqueous extract of date fruit. These results indicate that antioxidant and antimutagenic activity in date fruit is quite potent and implicates the presence of compounds with potent free-radical-scavenging activity.

Date Notes

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Dill/*Shabath, Sanūt*

Family: Apiaceae

Botanical Name: *Anethum graveolens*

Common Names: *English* Dill, Dill-seed, dill weed; *French* Aneth, Fenouil bâtard, Fenouil puant; *Spanish* Eneldo; *German* Dill, Kümmerlingskraut, Dillfenchel, Gurkenkraut; *Urdu/Unānī* Shibt, Soya, Shabbat; *Modern Standard Arabic* Shibith, Sadhāb al-barrī

Safety Rating: Generally Safe Dill is generally considered safe for most people. It should not, however, be taken medicinally by pregnant women. The juice of the plant may make the skin photosensitive.

Prophetic Prescription: According to the

Prophet Muḥammad, "You have senna (*sanā*) and *sannūt* in which there is a cure for every disease except death."[1] He also said, "There are three things which are a cure for every disease except death. There is senna (*sanā*) and there is *sannūt*."[2] (The third element is not named.) Imām Ja'far al-Ṣādiq prescribed dill (*shibith*) water cooked with honey to drink for three days to treat a woman who suffered from severe panic during sleep, to the point that it was believed that she had been touched by the jinn.[3]

Issues in Identification: It is the general consensus that *Anethum graveolens* is *shibth*, *shibitt*, and *sannūt*, which is known as dill or false fennel. Common dill is known in Arabic as *shibth 'abiq*, *sadhāb al-barrī*, and *ḥulwah*. Hans Wehr says that *Anethum graveolens* is *shbītt*. Bīrūnī has recorded it as *shibth* and *shabth*, which Said identifies as *Anethum graveolens*. Bīrūnī also speaks of *ḥazā'*, which Said identifies as either *Anethum graveolens* or *Selinum anethum*.[4] According to Duke, the post-biblical *shiveth* is identical to the Arabic *shibth*, both of which refer to *Anethum graveolens*.

As for the meaning of *sannūt*, scholars are divided on the issue, some suggesting that it means honey, a mixture of Makkan fat, a seed similar to cumin or dates.[5] According to Farooqi, "*sannūt* seems to be the Arabic name of dill."[6] This is also the opinion of Ibn Ṭūlūn, Abū Nu'aym al-Iṣbahānī, and Turkī.[7] This is certainly the case as *sannūt* remains the name for *Anethum* in Arabic. It seems clear that the scholars were unfamiliar with the Prophet's saying, *Al-thufā' al-ḥurf wa al-sannūt shbit* or "*Thufā'* is garden-cress and *sannūt* is dill."[8]

According to Ghazanfar, *Anethum graveolens* is found throughout Arabia, wild or cultivated.[9] According to Mandaville, *Anethum graveolens* is infrequent in eastern Saudi Arabia, found only as a weed or escape from cultivation in oases. It is known in Saudi Arabic as *ḥulwah*.[10] According to Ghazanfar, it is known in Oman as *ḥulwa*, *sbinet*, *shibith*, and *sadhāb al-barr*, while it is known in Qatar as *shabāt*.[11]

Properties and Uses: Dill is a pungent, cooling, aromatic, carminative herb that is digestive, febrifuge, diuretic, resolvent, emmenagogue, galactagogue and sialagogue. It is a cardiac tonic, soporific, stomachic, and stimulant. An antispasmodic and a calmative, it is used internally for digestive disorders, including indigestion, colic, hiccup, flatulence, especially as an ingredient of gripe water for babies, and hiatus hernia. Dill is used to treat bad breath, hiccups, insomnia, intestinal gas, muscle spasms, stomach pain, to stimulate the appetite, to strengthen nails, and to promote the flow of milk in nursing mothers. In Unānī medicine, dill is used externally as an eye wash.

Scientific Studies: *Antioxidative Activity* Dill has been shown to have antioxidative activity comparable to dl-alpha-tocopherol and quercetin.[12]

Anticancer Activity Anethofuran, carvone, and limonene from dill weed oil are considered potential cancer chemopreventive agents.[13]

Antifertility Activity In a controlled animal trial conducted by Shiraz University in Iran, *Anethum graveolens* extract was shown to possess menstrual cycle regulatory and anti-fertility properties.[14]

Antibacterial Activity In a study conducted by the University of London, extracts from *Anethum graveolens* were shown to possess antibacterial activity against a panel of rapidly growing mycobacteria with minimum inhibitory concentration.[15]

In an animal trial conducted by Mashhad University of Medical Sciences in Iran, *Anethum graveolens* seed extracts were shown to possess significant mucosal protective and antisecretory effects of the gastric mucosa.[16] In a study conducted by DDU Gorakhpur University in India, the essential oil of dill was very effective against eight pathogenic bacteria which cause infections in the human body.[17]

Antihyperlipidemic and Cholesterol-Lowering Activity In an animal trial conducted by the University of Tehran, the oral administration of the essential oil of dill seeds for 14 days reduced tricylglycerides and total cholesterol levels by almost 50 and 20 percent, respectively. Oral administration of the essential oil of *Anethum graveolens* seeds, at two different doses, also reduced the tricylglyceride levels by almost 42 percent.[18]

Dill Notes

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Eggplant/*Bādhinjān*

Family: Solanaceae

Botanical Name: *Solanum melongena*

Common Names: *English* Eggplant, Aubergine; *French* Mélongèn, Aubergine, Plante aux oeufs; *Spanish* Berenjena; *German* Eierfrucht, Eierpflanze, Aubergine, Nachtschatten; *Urdu/Unānī* Baigan, Badanjan, Badangan; *Modern Standard Arabic* Bādhinjān

Safety Rating: Generally Safe Eggplant is generally considered safe for most people. Since eggplant contains oxalates, which may interfere with the absorption of calcium, excessive consumption should be avoided. Eggplants also contain solanine, a calcium inhibitor. Consequently, they should be avoided by persons suffering from arthritis.

Prophetic Prescription: It is reported that the Messenger of Allāh said, "Eggplant is useful, taken for whatever purpose (as food or medicine)."[1] It is also related that he said, "Eat eggplant, and much of it, for verily it is a plant that I saw in Paradise. Whoever eats of it as a disease, for him it is a disease. And whoever eats of it as a medicine, for him it is a medicine."[2] Imām Ja'far al-Ṣādiq told his followers to "Eat eggplant. It is a cure for every illness."[3] He also said, "Eggplant is good for the black bile, and is not harmful for the yellow bile."[4] Imām 'Alī al-Riḍā used to say, "Give us eggplant, for it is hot in the cold and cool in the heat, suitable at all times and good in every condition."[5]

Issues in Identification: It is the consensus that *bādhinjān* is Arabic for *Solanum melongena*. Although it is native to India, eggplant spread into the Islamic world. From North Africa, it was taken to al-Andalus by the Muslims, and to the Americas by the Spaniards. Eggplant is currently cultivated throughout Arabia. Sūyūṭī mentions black and white varieties.[6] Since the eggplant has been developed into so many varieties, the original varieties consumed by the Prophet have most certainly been lost.

Properties and Uses: Eggplant possesses antibacterial properties, aids in the excretion of bile by the liver, promotes the flow of bile into the duodenum from the gall bladder, lowers cholesterol, and acts as a diuretic. Eggplant contains various caffeic substances, an alkaloidal glycoside called solanine, anthocyanins, and some vitamins. Because there are a few documented reports concerning the effects of *Solanum melongena* on cholesterol metabolism, its possible hypocholesterolemic activity has not been proven by well-controlled studies or in human trials.

Scientific Studies: *Antioxidative Activity* According to a study conducted at Okayama Prefectural University in Japan, eggplant peels contain an antioxidant which acts as an angiogenesis inhibitor. According to a study conducted at the University of Kerala in India, isolated flavanoids from *Solanum melongena* showed potent antioxidative activity.[7]

Anticancer Activity As a topical cream, the glycoalkaloids in eggplant have been used to treat skin cancers such as basal cell carcinoma, according to Australian researchers.[8]

Hypolipidemic Activity The anti-diabetic properties of eggplant have been known for centuries in India. An anti-diabetic remedy based on eggplant, bitter gourd and jamun, the fruit of the rose apple tree, was patented in 1999 by Cromak Research Inc.[9]

According to another study conducted in India, flavanoids extracted from the fruits of *Solanum melongena*, and orally administered at a dose of 1mg/100g BW/day, showed significant hypolipidemic action in normal and cholesterol fed rats.[10]

In a 6-week controlled trial of 21 individuals conducted at the Instituto do Coracao, Hospital das Clinicas, Brazil, the effect of eggplant extract on serum lipid levels was compared to that of lovastatin. No significant variation was observed in the HDL-cholesterol and triglyceride levels in the 3 groups during the study. As a result of this study, its authors concluded that eggplant extract with orange juice could not be considered an alternative to statins in reducing serum cholesterol levels.[11]

In a 5-week controlled trial of 38 hypercholesterolemic human volunteers conducted by the Instituto de Ciencias Biologicas in Belo Horizonte, Brazil, the ingestion of *Solanum melongena* had a modest and transitory effect on serum cholesterol and triglycerides which was not different from that obtained with standard orientation for dyslipidemia patients, namely, diet and exercise.[12] In a 3-month, double-blind, placebo-controlled, human trial of over 41 hyperlipidemic volunteers, conducted by the Universidade Estadual de Maringa in Portugal, the daily intake of dried powdered *Solanum melongena* had no significant effect on cholesterol.[13]

Eggplant Notes

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Endive/*Hindibā'*

Family: Asteraceae

Botanical Name: *Cichorium endivia*

Common Names: *English* Endive, chicory, escarole; *French* Chicorée endive, Endive, Scarole; *Spanish* Endibia, Chicoria, Achicoria, Escarola; *German* Endivienwegwarte, Endivie, Escariol; *Urdu/Unānī* Kasni, Hindiba; *Modern Standard Arabic* Kasnīsah, Hindibā'

Safety Rating: Generally Safe Endive and chicory are generally considered safe for most people in food quantities and in proper therapeutic dosages. People who are hypersensitive to chicory or plants from the Asteraceae family should avoid the plant to prevent possible allergic reactions.

Prophetic Prescription: The Messenger of Allāh said, "Eat endives (*hindibā'*) … for verily there is not one day that drops of water of Paradise do not fall upon them."[1] He also said, "Take endive (*hindibā'*), but do not wash it."[2] Both the Prophet and Imām ʿAlī ibn Abī Ṭālib said "Eat endive (*hindibā'*), for there is not a morning when drops of heaven do not fall on it."[3] Imām Jaʿfar al-Ṣādiq said, "Take endive (*hindibā'*), for it increases semen and improves one's progeniture. It is hot and increases the number of male children."[4] The Imām also said, "He who wants more money and more male offspring should increase his consumption of endive (*hindibā'*)."[5] Likewise, he said, "Use endive (*hindibā'*) for it increases semen (*al-mā'*) and beautifies the face."[6] The Imām explained that "He who spends the night with seven portions of endive (*hindibā'*) in his inside is protected from colic for the entire night, Allāh willing."[7] On one occasion, a man came to Imām Jaʿfar al-Ṣādiq complaining of a disturbance of the head and teeth and a throbbing in the eye, and a swollen face. The Imām said, "Take this endive (*hindibā'*) and extract its juice. Take the juice and pour it over a lot of lump sugar. It will relieve it and drive away its harm."[8] The patient went home, drank the preparation and in the morning he was cured.

Issues in Identification: According to Dīnawarī, endive is known as *hindibā'*, and *hindabā'*.[9] As Nehmé explains, *Cichorium* is *hindibā'*, known as chicory and succory, while *Cichorium intybus* is *hindibā' barriyah* or common chicory. Bīrūnī says that *hindibā'* is also known as *hundubā'* and Said identifies it as *Cichorium endivia* L. (wild chicory, endive), also known as *hummad al-bustānī*, which is endemic to Egypt and East India.[10] Ibn

Ḥabīb says that *hindibā'* is also known as *al-sarīs*.[11] Akīlī, Johnstone, Álvarez de Morales, and Girón Irueste, among others, identify *hindibā'* as *Cichorium intybus*.[12] *Cichorium intybus* is found in sandy habitats in Saudi Arabia where it is also cultivated and used commonly.

According to Duke, the bitter herbs of Moses may have included any or all the nine Mediterranean species of *Cichorium*, including *C. endivia* which he identifies as the Arabic *hindibā'*. As the author notes, the Arabic term *hindibā'* also applies to *C. intybus*.

It is important to note that the *hindibā'* mentioned by the Prophet and the Imāms referred to chicory and not Belgian or French endive, which was only discovered in the early to mid–1800s when a Belgian accidently dug up wild chicory roots. The plant was further developed by M. Brézier, a Belgian botanist, resulting in the variety we are familiar with today.[13]

Properties and Uses: Endive belongs to the *Cichorium* genus, known for its diuretic, stomachic, tonic, digestive, cholagogue, laxative, anti-inflammatory properties and tonic effect on the liver and gall bladder. *C. endivia* in particular is considered allergenic, antibilious, antioxidant, antiradicular, aphrodisiac, bitter, carminative, choleretic, decongestant, and emetic. It is also viewed as demulcent, depurative, digestive, diuretic, febrifuge, laxative, orexigenic, refrigerant, resolvent, and sedative. Finally, it is also considered stimulant, tonic, vermifuge, and vulnerary.

Internally, *C. endivia* is used to treat anorexia, biliousness, cancer of the liver, spleen, throat, and uterus, catarrh, constipation, cramp, diarrhea, dropsy and dyspepsia. It is also employed in the treatment of enterosis, fever, fluid retention, gastrosis, gallstones, gout, headache, hemorrhoid, hepatosis, impotence, induration, inflammation, jaundice and pharyngosis. Finally, it is used for pulmonosis, splenosis, swelling, toothache, uterosis, wart, worms, and the treatment of wounds.

Cichorium intybus has a long list of activities. It is considered alexiteric, allergenic, alterative, analgesic, antibilious, antiexudative, antifeedant, anti-inflammatory, antilipogenic, antimalarial, antimetastatic, antimutagenic, antioxidant, antiradicular, antiseptic, antispermatogenic, and antisteatotic. It is also viewed as bactericide, bifidogenic, bitter, bradycardic, cerebroprotective, cardiodepressant, cardiotonic, carminative, cerebrotonic, chemopreventive, cholagogue, choleretic, COX-2 inhibitor, decongestant, demulcent, depurative, digestive, and diuretic. It is equally considered emmenagogue, febrifuge, hepatoprotective, hypocholesterolemic, hypoglycemic, hypotensive, laxative, lipolytic, negative chronotropic, negative inotropic, nervice, and neuroprotective. Finally, it is seen as orexigenic, presistaltic, phytoalexin, prebiotic, refrigerant, sedative, stomachic, and tonic.

Cichorium intybus is used to treat a long host of ailments and conditions, including acne, adenopathy, ague, Alzheimer's, Amenorrhea, anorexia, arrhythmia, arthrosis, asthma, atony, bacterial infection, biliousness, and cancers of the breast, uterus, colon, gums, liver, lung, mouth, spleen, stomach, and tongue. It is used for catarrh, chancre, conjunctivosis, constipation, cramps, cystosis, deafness, dermatosis, diabetes, diarrhea, dropsy, dysmenorrhea, dyspepsia, edema, enterosis, epilepsy, fever, gallstone, gastrosis, gingivosis, glossosis, gout, gravel, headache, heartburn, hemorrhoid, hepatosis, high blood pressure, hypercholesterolemia, and hyperglycemia. It is employed in the treatment of induration, infection, inflammation, insomnia, jaundice, lachrymosis, lumbago, malaria, melancholy, nausea, nephrosis, obesity, oliguria, ophthalmia, pain, pharyngosis, pseudomonas, pulmonosis, pyelonephrosis, respirosis, rash, rheumatism, sclerosi, sore, and sore throat. Finally, it is used for splenomegaly, splenosis, stone, swelling, tachycardia, toothache, tuberculosis, urethrosis, urolithiasis, uterosis, vomiting, worms, and wounds.

Scientific Studies: *Anticancer Activity* According to the Cancer Prevention Research Program, Fred Hutchinson Cancer Research Center in Seattle, the review of the epidemiological data, including both cohort and case-control studies, of all cancer sites, strongly suggests that plant foods like endives have preventive potential and that people who consume fewer vegetable and fruits have higher rates of cancer.[14]

Cardioregulating Activity Although more research needs to be conducted on the issue, chicory may have some use in treating irregular heartbeats.[15]

Endive Notes

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Fennel/*Rāziyānaj*

Family: Apiaceae

Botanical Name: *Foeniculum vulgare*

Common Names: *English* Common fennel, bitter fennel; *French* Fenouil, Aneth doux; *German* Echter Fenchel, Süßfenchel; *Spanish* Hinojo; *Urdu/Unānī* Saunf, Saunph, Badiyan, Raziyanah, Raziyanaj; *Modern Standard Arabic* Shumrah, Shamār, Shamar

Safety Rating: Generally Safe All part of the fennel plant are generally considered safe for most people when used in moderation. The seeds, however, should be avoided by those with a history of allergies or skin sensitivities. They should also be avoided by pregnant women due to their hormonal action.

Prophetic Prescription: Imām Mūsā al-Kāẓim told a group of physicians, "Confine yourselves to the chief of these medicines: myrobalan (*al-ihlīlaj*), fennel (*al-rāziyānaj*), and sugar. [Take it] at the beginning of the summer for three months, three times a month, and at the beginning of the winter for three months, three days a month, three times. Let the place of the fennel be from near the gummastic (*maṣṭakā*) and one will not fall ill except for the illness of death."[1]

Issues in Identification: The tradition below may cause confusion as Imām Mūsā al-Kāẓim has referred to fennel by its Persian name *rāziyānaj*. The herb is also known as *rāziyanah*, and is the Persian equivalent of the Arabic *shumrah* and *shamār*. According to Ghazanfar, it is also known as *shīḥ* is Saudi Arabia, and as *samār* in Yemen. In al-Andalus and the Maghreb, it is known as *basbās*. It is found in cosmopolitan areas in Saudi Arabia where it is cultivated.[2]

Properties and Uses: *Foeniculum vulgare*, commonly known as fennel, is a sweet, aromatic, mildly diuretic herb that relieves digestive problems, increases milk flow, relaxes spasms, and reduces inflammation. It is also a carminative, stimulant, galactogogue, decongestant, diuretic, diaphoretic, pain-reducer, and fever-reducer, with anti-microbial properties. In Unānī medicine, it is considered sedative, stomachic, anthelmintic, expectorant, restorative, and aphrodisiac.

Internally, fennel seeds are used for indigestion, flatulence, colic, Crohn's disease, food poisoning, motion sickness, vomiting, coughs, tuberculosis, bronchitis, fevers, sore throat, neuralgia, sciatica, swollen glands, skin eruptions, wounds, tumors, sores, furuncles, asthma, bronchitis, emphysema, tuberculosis, and insufficient lactation. The roots are used for urinary disorders. The herb is also used to stimulate menstruation and to promote childbirth and delivery.

Externally, fennel seed is used to treat conjunctivitis and dermatitis. It is also used as mouthwash and to treat sore throat. It is combined with *Chamaemelum nobile*, *Filipendula ulmaria*, *Mentha x piperita*, and *Geranium maculatum* for digestive disorders. Fennel oil is combined with oils of *Thymus vulgaris* and *Eucaplytis globulus* and diluted with vegetable oil as a rub for bronchial congestion. Fennel is also added to laxative preparations to prevent griping, and to "gripe water" for babies. Fennel oil is not given to pregnant women.

Scientific Studies: *Larvacidal Activity* According to a study conducted by Chiang Mai University in Thailand, *Foeniculum vulgare* exerts significant larvicidal activity against the two mosquito species after 24-hour exposure, including *Anopheles dirus*, the major malaria vector, and *Aedes aegypti*, the main vector of dengue and dengue hemorrhagic fever in urban areas.[3]

Antiulcer and Antioxidative Activity According to a study conducted by Afyon Kocatepe University in Turkey, *Foeniculum vulgare* has clearly a protective effect against gastric mucosal lesions, and this effect, at least in part, depends upon the reduction in lipid peroxidation and augmentation in the antioxidative activity.[4]

According to a study conducted by Yonsei University in South Korea, the oral administration of *Foeniculum vulgare* fruit methanolic extract exhibits inhibitory effects against acute and subacute inflammatory diseases and type 4 allergic reactions. They found it also possesses a central analgesic effect. These results seem to support the use of fennel fruit methanolic extract in relieving inflammation.[5]

Antifungal Activity According to a study conducted by the University of Selcuk in Turkey, fennel oils exhibit different degrees of fungistatic activity, depending on doses.[6]

Anti-Constipation Activity According to a double-blind, placebo-controlled, 2-armed, parallel-group clinical trial of 86 nursing home residents conducted by Cedarbrook Nursing Home in the U.S., Smooth Move herbal tea, which contains fennel, increased the average number of bowel movements of residents, confirming its efficacy as a treatment for chronic constipation.[7]

Memory-Enhancing Activity According to an animal study conducted by SET's College of Pharmacy in India, *Foeniculum vulgare* extract significantly increases step-down latency and acetylcholinesterase inhibition. It was concluded that *F. vulgare* could be employed in the treatment of cognitive disorders such as dementia and Alzheimer's disease.[8]

Gastro-Intestinal Activity According to an ongoing screening program conducted by the University of Illinois at Chicago, the methanol extract of *Foeniculum vulgare* seeds has an MIC of 25 microg/mL against 15 HP strains.[9]

Anticolic Activity According to a randomized, double-blind, placebo-controlled trial conducted by the Universita di Torino, the effectiveness and side effects of a phytotherapeutic agent with *Matricariae recutita*, *Foeniculum vulgare* and *Melissa officinalis* was examined in the treatment of infantile colic. Ninety-three breastfed colicky infants were enrolled, while 88 infants completed the trial: 41 in the phytotherapeutic agent group and 47 in the control. Crying time reduction was observed in 85.4 percent subjects for the phytotherapeutic agent and in 48.9 percent subjects for the placebo. No side effects were reported. The study showed that colic in breastfed infants improved within one week of treatment with an extract based on *Matricariae recutita*, *Foeniculum vulgare* and *Melissa officinalis*.[10]

In a randomized placebo-controlled trial of 125 colicky infants aged 2 to 12 weeks conducted by St. Petersburg Medical Academy of Postdoctoral Education in Russia, the use of fennel oil emulsion eliminated colic in 65 percent of infants in the treatment group, which was significantly better than 23.7 percent of infants in the control group. There was a significant improvement of colic in the treatment group compared with the control group. Side effects were not reported for infants in either group during the trial. The study suggests that fennel seed oil is superior to placebo in decreasing intensity of infantile colic.[11]

Anti-hirsutism Activity In a double-blind study conducted by Shiraz University of Medical Sciences in Iran, 38 patients suffering from idiopathic hirsutism, namely, the occurrence of excessive male-pattern hair growth in women, were treated with creams containing 1 percent and 2 percent of fennel extract and placebo. After hair diameter was measured and rate of growth was considered, the cream containing 2 percent fennel was found to be better than the one containing 1 percent and both were more potent than placebo. The mean values of hair diameter reduction was 7.8 percent, 18.3 percent and -0.5 percent for patients receiving the creams containing 1 percent, 2 percent and 0 percent (placebo) respectively.[12] The effectiveness of the fennel cream confirms its use as an estrogenic agent in treating idiopathic hirsutism which is a disorder of peripheral androgen metabolism.

Hepaprotective Activity In an animal study conducted by Yuzuncu Yil University in Turkey, the essential oil of *Foeniculum vulgare* was shown to have a potent hepaprotective action against hepatic damage.[13]

Insect Repellent Activity According to a study conducted by Seoul National University, the repellent activity of materials derived from the methanol extract of fruits from *Foeniculum vulgare* was compared to that of deet. The fennel extract exhibited a moderate repellent activity at 30 minutes after treatment, whereas deet provided less than an hour of protection against mosquitoes. It was concluded that two components of fennel merited further study as potential mosquito repellent agents or as lead compounds.[14]

Antimicrobial and Antioxidative Activity According to a study conducted by Kangwon National University in Korea, the stems of *Foeniculum vulgare* contain an antimicrobial principle against *Bacillus subtilis*, *Aspergillus niger*, and *Cladosporium cladosporioides*.[15]

According to an in-vitro study conducted by the Istituto del C.N.R. per lo Studio delle Sostanze Naturali di Interesse Alimentare e Chimico–Farmaceutico in Italy, the essential oil of *Crithmum maritimum* L. (marine fennel) and two samples of *Foeniculum vulgare* Miller (common fennel) demonstrated antioxidant capacities, comparable in some cases to that of alpha-tocopherol and butylated hydroxytoluene (BHT), used as reference antioxidants. The essential oils were assayed against twenty-five genera of bacteria, including animal and plant pathogens, food poisoning and spoilage bacteria. Oils from the two samples of *F. vulgare* showed a higher and broader degree of inhibition than that of *Crithmum maritimum*.[16]

Cardiostimulating Activity According to a study conducted by Birzeit University in the Occupied West Bank of Palestine, the intravenous administration of the lyophilized boiled water extract of *Foeniculum vulgare* leaves produces a significant dose-related reduction in arterial blood pressure, without affecting the heart rate or respiratory rate. In contrast, the non-boiled aqueous extract showed very little hypotensive activity.[17]

Estrogenic Activity Fennel, *Foeniculum vulgare*, and anise, *Pimpinella anisum*, are plants which have been used as estrogenic agents for millennia. Specifically, they have been reputed to increase milk secretion, promote menstruation, facilitate birth, alleviate the symptoms of the male climacteric, and increase libido. In the 1930s, some interest was shown in these plants in the development of synthetic estrogens. The main constituent of the essential oils of fennel and anise, anethole, has been considered to be the active estrogenic agent. However, further research suggests that the actual pharmacologically active agents are polymers of anethole, such as dianethole and photoanethole.[18]

According to an animal trial, the oral administration of acetone extract of *Foeniculum vulgare* seeds for 15 days significantly decreased total protein concentration in testes and increased concentration in seminal vesicles and prostate gland. There was a decrease in activities of acid and alkaline phosphatase in all these regions, except that alkaline phosphatase was unchanged in vasa (vessel or duct). In female rats, oral administration of the extract for 10 days led to vaginal cornification and oestrus cycle. While moderate doses caused increase in weight of mammary glands, higher doses increased the weight of oviduct, endometrium, myometrium, cervix and vagina also. The results confirm the oestrogenic activity of the seed extract.[19]

Fennel Notes

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Fenugreek/*Ḥulbah*

Family: Fabaceae

Botanical Name: *Trigonella foenum-graecum*

Common Names: *English* Fenugreek; *French* Fénugrec, Sénegrain; *Spanish* Alholva, Fenogreco; *German* Griechisches Bockshorn, Bockshornklee, Kuhhornklee, Ziegenhorn, Hirschwundkraut, Rehkörner, Fenugreek, feine Grete, Filigrazie, Schöne Margreth, Siebenzeiten, Stundenkraut, Methika, Philosophenklee; *Urdu/Unānī* Meythi, Hulba; *Modern Standard Arabic* Ḥulbah, Ḥalbah, Farīqah

Safety Rating: Generally Safe Fenugreek is generally considered safe in moderation. It should not, however, be consumed by pregnant women. It also prevents the absorption of oral drugs.

Prophetic Prescription: According to the Messenger of Allāh "If people knew the benefits of fenugreek, they would pay its weight in gold."[1] He said, "Seek a cure with fenugreek (*ḥulbah*)."[2] He recommended herbalists to "Mix fenugreek (*ḥulbah*) in your medicines."[3] Once, when Sa'd ibn Abī Waqqāṣ fell ill, the herbalist Ḥārith ibn Kaladah told him to consume a medicine consisting of dates, barley, and fenugreek (*ḥulbah*) boiled in water with honey once per day. The Prophet approved the preparation and the patient was relieved.[4]

Issues in Identification: It is the consensus that *ḥulbah* is Arabic for fenugreek. As Nehmé has explained, *Trigonella* or fenugreek is known in Arabic as *ḥulbah* and *ḥalbah*, and *Trigonella foenum-graecum* is known as *ḥulbah shā'i'ah* and *ḥulbah zirā'iyyah*.[5] According to both Ghazanfar and Mandaville, *Trigonella foenum-graecum* is almost an exclusively cultivated herb in eastern Saudi Arabia, rarely found as an escapee. It is known as *ḥulbah* in Saudi Arabic, as well as *ḥelbah* and *ḥilbah*.[6]

Properties and Uses: Fenugreek is a bitter, pungent, warming herb that increases milk flow, stimulates the uterus, soothes irritated tissues, lowers fever, improves digestion, promotes healing, and has laxative, expectorant, diuretic, antiparasitic, and antitumor effects. Seeds are eaten as a tonic for the liver, kidneys and male sexual organs.

Fenugreek is used internally for late-onset diabetes, poor digestion (especially in convalescence), gastric inflammation, digestive disorders, tuberculosis, painful menstruation, labor pains, and insufficient lactation. Fenugreek acts as a bulk laxative, lubricates the intestines, and reduces fever. It helps asthma and sinus problems by reducing mucus. It is used in the treatment of diabetes, inflamed lymph glands, leg ulcers, muscle pain, poor appetite, tuberculosis, and wounds. In Chinese medicine, fenugreek is used for kidney-related disorders. In Ayurvedic medicine, it is used mainly to treat digestive and bronchial complaints, debility, allergies, neurasthenia, gout and arthritis. Fenugreek is approved in Germany as an internal treatment for gastritis, loss of appetite, and as a poultice for inflammations.[7] Arab women used it to gain weight.[8] Externally, it is used for local inflammation and to soften the skin.[9] The herb is never given to pregnant women.

Scientific Studies: *Cholesterol-Lowering, Antidiabetic, Anti-inflammatory, Antimicrobial, Antifungal, and Antiulcer Activity* Small animal studies have revealed a large number of potential therapeutic applications of the seed. These include its use in treating baldness, cancer, elevated cholesterol levels, diabetes, inflammations, microbial and fungal infections, and stomach ulcers.[10]

Antidiabetic Activity Preliminary animal and human trials suggest possible hypoglycemic and antihyperlipidemic properties of fenugreek seed powder taken orally.[11] Studies have identified hypoglycemic activity of various fenugreek seed extracts in rabbits, rats, and dogs. Several small and mostly uncontrolled human studies have shown a reduction in plasma glucose concentration and insulin responses in non–insulin-dependent diabetics. Used to treat diabetes in the Middle East, some experimental date suggests that extracts of the seed do lower blood sugar levels. Small double-blind studies suggest that fenugreek can be helpful for both type 1 and type 2 diabetes. In one study of 60 people with type 2 diabetes, 25 mg per day of fenugreek led to significant improvements in overall blood sugar control, blood sugar elevations in response to a meal, and cholesterol levels.[12] Another study found benefits with only 15 mg of fenugreek per day.[13] In a small double-blind, controlled study, people with type 1 diabetes were randomly prescribed either fenugreek at a dose of 50 mg daily as part of their lunch and dinner, or the same meals without the powder, each for 10 days. Those on the fenugreek diet had significant decreases in their fasting blood sugar.[14] It may also interfere with certain drugs for diabetes. Its high mucilage coats the stomach and may prevent absorption of other drugs.[15]

According to a report published by the Indian Council of Medical Research, daily doses of fenugreek seeds, ranging from 25 to 100 grams, diminish reactive hyperglycemia in diabetic patients. Levels of glucose, serum cholesterol and triglyc-

erides are also significantly reduced in the diabetes patients when the seeds were consumed. The report said that the effect of taking fenugreek seeds could be quite dramatic, when consumed with a 1200 to 1400 calories-per-day diet, which is usually recommended for diabetic patients.

In an animal study conducted by Satsang Herbal Research and Analytical Laboratories in India, the oral administration of 95 percent ethanolic extract of *Foenum-graecum* was confirmed to possess blood glucose-lowering effects.[16]

According to a review of scientific studies on traditional anti-diabetic herbs conducted by the Department of Chemistry, Yonsei University, Seoul, Korea, *Momordica charantia* L. (Cucurbitaceae), *Pterocarpus marsupium* Roxb. (Fabaceae), and *Trigonella foenum graecum* L. (Fabaceae), have been reported as beneficial for treatment of type 2 diabetes.[17]

In a 3-month controlled human trial conducted by Punjab Agricultural University in India, the effect of supplementation of a powdered mixture of three traditional medicinal plants — bitter gourd, jamun seeds, and fenugreek seeds, in raw and cooked form — on blood glucose was studied in 60 non–insulin-dependent male diabetics.[18] Daily supplementation of 1 g of this powered mixture for a 1.5-month period and then a further increase to 2 g for another 1.5 months significantly reduced the fasting as well as the postprandial glucose level of the diabetic patients. A significant decrease in oral hypoglycemic drug intake and decline in percentage of the subjects who were on hypoglycemic drugs were found after the 3-month feeding trial. It was concluded that 2 g of a powdered mixture of traditional medicinal plants in either raw or cooked form can be successfully used for lowering blood glucose in diabetics.

In a study conducted by the Central Food Technological Research Institute in India, fenugreek seeds (*Trigonella foenum-graecum*), garlic (*Allium sativum*), onion (*Allium cepa*), and turmeric (*Curcuma longa*) have been experimentally documented to possess antidiabetic potential. In a limited number of studies, cumin seeds (*Cuminum cyminum*), ginger (*Zingiber officinale*), mustard (*Brassica nigra*), curry leaves (*Murraya koenigii*) and coriander (*Coriandrum sativum*) have been reported to be hypoglycemic.[19]

In a 21-day animal study conducted by Ain Shams University in Egypt, oral administration of fenugreek seed reduced blood glucose level by 58 percent, restored liver glycogen content and significantly decreased kidney glycogen as well as liver glucose-6-phosphatase activity. Meanwhile, *Balanites aegyptiaca* extract reduced blood glucose level by 24 percent and significantly decreased liver glucose-6-phosphatase activity in diabetic rats. The results demonstrated that both the fenugreek and balanites extracts were able to in vitro inhibit alpha-amylase activity in dose-dependent manner. Fenugreek was a more potent inhibitor than balanites. These findings suggest that the hypoglycemic effect of fenugreek and balanites is mediated through insulinomimetic effect as well as inhibition of intestinal alpha-amylase activity.[20]

In a study conducted by the National Centre for Cell Science in India, the in vivo hypoglycemic activity of a dialyzed fenugreek seed extract was studied in alloxan-induced diabetic mice and found to be comparable to that of insulin.[21] Fenugreek seed extract also improved intraperitoneal glucose tolerance in normal mice. These results suggest that in vivo the hypoglycemic effect of fenugreek seed extract is mediated, at least in part, by the activation of an insulin signaling pathway in adipocytes and liver cells.

According to a study conducted by Jawaharlal Nehru University in India, oral administration of fenugreek seed powder for 3 weeks to alloxan diabetic rats stabilized glucose homeostasis and free radical metabolism in liver and kidney. This second study suggests that fenugreek seed power has a protective effect on the liver and kidney of diabetic rats, proving its potential as an anti-diabetic agent.[22]

In an animal trial conducted by Khulna Medical College, the effectiveness of defatted fenugreek seeds as an antidiabetogenic herb was examined.[23] The experiment was carried out in Bangabandhu Sheikh Mujib Medical University and BIRDEM from 1996 to 1998 on a total of 58 Long Evans rats of either sex. The experiment concluded that fenugreek decreases the fasting blood glucose level considerably by improving diabetes mellitus.

In an animal trial conducted by Annamalai University in India, supplementation with fenugreek leaves showed a significant effect on hyperglycemia, hypoinsulinemia and glycosylated hemoglobin in streptozotocin diabetic rats. Fenugreek leaves improved the body weight and liver glycogen. Fenugreek leaves also showed a significant effect on key carbohydrate metabolic enzymes in diabetic rats. The effect of fenugreek leaves was found to be similar to that of glibenclamide. Thus, fenugreek leaves exhibited antidiabetic action in streptozotocin-induced diabetic rats. Insulin restored all the parameters to near normal levels in diabetic rats.[24]

In a human trial conducted by the National Institute of Nutrition in India, fenugreek signifi-

cantly reduced fasting blood sugar and improved the glucose tolerance test.[25] There was a 54 percent reduction in 24-h urinary glucose excretion. Serum total cholesterol, LDL and VLDL cholesterol and triglycerides were also significantly reduced. The HDL cholesterol fraction, however, remained unchanged. These results are further indicators of the usefulness of fenugreek seeds in the management of diabetes.

In a study conducted in Israel, the effect of fenugreek on postprandial glucose and insulin levels following the meal tolerance test was studied in non–insulin-dependent diabetics.[26] The addition of powdered fenugreek seed (15 g) soaked in water significantly reduced the subsequent postprandial glucose levels. The plasma insulin also tended to be lower in non–insulin-dependent diabetics given fenugreek but without a statistical difference. Fenugreek had no effect on lipid levels 3 h following the meal tolerance test. Fenugreek may have a potential benefit in the treatment of non–insulin-dependent diabetics.

In another study, fractions of fenugreek seed were added to the diet of normal or diabetic hypercholesterolemic dogs for 8 days.[27] The effects on levels of blood glucose, plasma glucagon and plasma cholesterol were investigated. The lipid extract had no effect. The defatted fraction, which is rich in fibers (53.9 percent) and contains 4.8 percent of steroid saponins, significantly lowered basal blood glucose, plasma glucagon, and plasma cholesterol levels in normal dogs. The addition of this fraction to the food of diabetic hypercholesterolemic dogs caused a decrease of cholesterolemia and reduced hyperglycemia. The study concluded that the defatted portion of fenugreek seed induces a hypocholesterolemic effect.

Uterine Stimulating Activity Extracts from fenugreek have been shown to stimulate uterine contractions in guinea pigs.[28]

Cholesterol-Lowering Activity A recent study showed that fenugreek seeds significantly lowered serum cholesterol levels (14 percent reduction) in a 24-week study with sixty non–insulin-dependent diabetics.[29]

The Peninsula Medical School, Universities of Exeter and Plymouth in the UK systematically reviewed the clinical evidence for herbal medicinal products in the treatment of hypercholesterolemia.[30] Systematic literature searches were conducted in 6 electronic databases. Twenty-five randomized clinical trials involving 11 herbal medicinal products were identified. Guggul (*Commiphora mukul*), fenugreek (*Trigonella foenum-graecum*), red yeast rice, and artichoke (*Cynara scolymus*) have been most extensively studied and have demonstrated reductions in total serum cholesterol levels of between 10 percent and 33 percent. The methodological quality as assessed by the Jadad score was less than 3 (maximum, 5) for 13 of the 25 trials. Many herbal medicinal products have potential hypocholesterolemic activity and encouraging safety profiles. However, only a limited amount of clinical research exists to support their efficacy. Further research is warranted to establish the value of these extracts in the treatment of hypercholesterolemia.

Cytoprotective Activity In a study conducted by Annamalai University in India, the cytoprotective effects of fenugreek polyphenolic extract were comparable with those of a positive control silymarin, a known hepatoprotective agent. The findings suggest that the polyphenolic compounds of fenugreek seeds can be considered cytoprotective during ethanol-induced liver damage.[31]

Antihypertriglyceridemic Activity In a study conducted by Tokyo University of Marine Science and Technology, researchers found that fenugreek seed extract reduced the body weight gain induced by a high-fat diet in obese mice.[32] The extract decreased plasma triglyceride gain induced by oil administration. The major component of the extract, 4-hydroxyisoleucine, also decreased plasma triglyceride gain. Fenugreek seed extract is a potentially positive component in the prevention of obesity induced by a high-fat diet.

Antioxidative Activity In a study conducted by Annamalai University in India, fenugreek seeds were found to possess potent antioxidant properties.[33]

In a study conducted by the University of Pune in India, the antioxidant properties of germinated fenugreek seeds were studied in comparison to those of dried seeds.[34] This study reveals significant antioxidative activity in germinated fenugreek seeds which may be due partly to the presence of flavonoids and polyphenols.

Anticancer Activity According to a study conducted by the United Arab Emirates University, fenugreek seeds show a potential protective effect against chemically induced breast cancer in rats.[35] At 200 mg/kg body weight, fenugreek seed extract significantly inhibited the induced mammary hyperplasia and decreased its incidence. Epidemiological studies also implicate apoptosis as a mechanism that might mediate the fenugreek's anti–breast cancer protective effects. This was apparently the first study which suggested significant chemopreventive effects of fenugreek seeds against breast cancer.

In a 15-week animal study conducted by Annamalai University in India, supplementation of

fenugreek seeds inhibited colon carcinogenesis by modulating the activities of beta-glucuronidase and mucinase. According to researchers, the beneficial effect may be attributed to the presence of fiber, flavonoids and/or saponins.[36]

Antihyperthyroidic Activity According to an animal trial conducted by Devi Ahilya University in India, *Trigonella foenum-graecum* and *Allium sativum* extracts may be used individually but not together in the regulation of hyperthyroidism as they do not prove to be synergistic.[37]

Breast-Enhancing Activity George Washington University School of Medicine claims that no clinical trials have been published on breast-enhancing herbs like fenugreek. According to these researchers, the use of bust-enhancing products should be discouraged because of lack of evidence for efficacy and long-term safety concerns.[38] However, according to the Drug Information and Medication Use Outcomes Section, University of Illinois at Chicago, the use of fenugreek has been purported to be effective in anecdotal reports. Use of this agent may be warranted after considering risks versus benefits.[39]

Antiulcer Activity In a study conducted by Annamalai University in India, the aqueous extract and a gel fraction isolated from fenugreek seeds showed significant ulcer protective effects. The cytoprotective effect of the seeds seemed to be not only due to the anti-secretory action but also to the effects on mucosal glycoproteins. The fenugreek seeds also prevented the rise in lipid peroxidation induced by ethanol, presumably by enhancing antioxidant potential of the gastric mucosa thereby lowering mucosal injury. Histological studies revealed that the soluble gel fraction derived from the seeds was more effective than omeprazole in preventing lesion formation. These observations show that fenugreek seeds possess antiulcer potential.[40]

Fenugreek Notes

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Fig/*Tīn*

Family: Moraceae

Botanical Name: *Ficus carica*

Common Names: *English* Common fig tree; *French* Figuier, Carique; *Spanish* Higuera; *German* Echter Feigenbaum; *Urdu/Unānī* Teen, Anjeer; *Modern Standard Arabic* Tīn

Safety Rating: Generally Safe Figs are generally considered safe for most people.

Prophetic Prescription: Not only is the fig mentioned in the Qur'ān, it is the name of one of its chapters (95:1). The Prophet Muḥammad said, "If I were to say that any fruit descended from Paradise, I should say these, for the fruit of Paradise has no stones. So eat from them: for they put an end to hemorrhoids, and are beneficial for gout."[1] He also stated, "Eat figs for they help hemorrhoids and gout."[2] Both the Prophet and Imām 'Alī ibn Abī Ṭālib recommended to people that "To eat figs protects against colic."[3] The Imām also said, "[e]ating figs relaxes obstructions [in the body] and is beneficial for the wind of colic."[4]

Issues in Identification: It is the consensus that *tīn* is Arabic for fig. As Nehmé has explained, *Ficus* is known in Arabic as *tīn*, while *Ficus carica* is known as *tīn shā'i'*.[5] According to Bīrūnī, *tīn* is also known as *balas*.[6] As Ghazanfar notes, *Ficus carica* is known as *balas 'arabī* in Yemeni Arabic.[7] Although there were no figs in the Ḥijāz and Medina during the time of the Prophet, they are now widely cultivated in all parts of Saudi Arabia. They are cultivated throughout South West Asia, North Africa, and Southern Europe. In all likelihood, the figs consumed by the Prophet were brought by caravan to Arabia from Mosul in what is now the Kurdish region of Iraq.

Properties and Uses: *Ficus carica*, known commonly as fig, is a sweet, laxative herb that soothes irritated tissues and is used internally for constipation and externally for hemorrhoids. Figs are nutritive, concoctive, laxative, emollient, expectorant, diaphoretic, digestive, diuretic, febrifuge, deobstruent, demulcent, and aperient, and contain the best nutrient score among dried fruits.[8] They contain gentle laxative substances and are thus well-suited for the treatment of constipation in children and individuals with a delicate constitution. Figs are in fact employed in the preparation of laxatives, usually in combination with senna and carminatives. Figs also contain antiulcer, antibacterial and antiparasitic properties and are beneficial in the treatment of asthma and sexual debility. The leaves, fruit, and latex of figs are effective in removing warts and corns. The soft interior pulp of roasted figs can be applied as a poultice to boils and carbuncles. A syrup made of the leaves of green fruits is excellent for coughs, hoarseness or shortness of breath and all diseases of the chest and lungs. According to Ibn Buṭlān, white, peeled figs purify the kidneys.[9]

Scientific Studies: *Antioxidative Activity* Figs are particularly elevated in antioxidants. According to one study, fig antioxidants can enrich lipoproteins in plasma and protect them from subsequent oxidation.[10]

Antimutagenic Activity In a study of the antimutagenic action of plants extracts of *Armoracia rusticana*, *Ficus carica*, *Zea mays*, and their mixture on environmental xenobiotics, researchers found that they decreased the genotoxicity of environmental mutagens.[11]

Anticancer Activity Figs are rich in flavonoids and polyphenols both of which are believed to reduce the risk of cancer and heart disease.[12] Both extract of figs and the fig compound, benzaidehyde, have helped shrink tumors in humans according to Japanese tests. In a study conducted by the Hebrew University in Jerusalem, figs were found to contain compounds which inhibit the proliferation of various cancer cells lines.[13]

Antidiabetic Activity In a controlled animal trial conducted by the University of Extremadura in Spain, researchers found that *Ficus carica* extract tends to normalize the antioxidant values in diabetic animals.[14] In a controlled, double-blind, human trial of insulin-dependent diabetes mellitus patients conducted by the Faculty of Medicine in Madrid, researchers found that a decoction of fig leaves, as a supplement to breakfast, lowered insulin levels by 12 percent while helping to control postprandial glycemia.[15]

Antiherpetic Activity In a study conducted by Shandong University in Jinan, *Ficus carica* leaf extract was found to possess a distinct anti–HSV-1 effect. It possessed low toxicity and had a direct killing-virus effect on HSV-1. Researchers concluded that the leaves of *Ficus carica* possess anti–HSV-1 effect, and their application on the area of medicine, food and drugs has expansive foreground.[16]

Anti-Hypoglycemic Activity In an animal study conducted by Satsang Herbal Research and Analytical Laboratories in India, the oral administration of 95 percent ethanolic extract of *Ficus glomerata* and *Ficus benghalensis* was confirmed to possess blood glucose lowering effects.[17]

Fig Notes

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Fleawort/ *Bizr Qaṭūnā, Ashbiyūsh*

Family: Plantaginaceae

Botanical Name: *Plantago psyllium*

Common Names: *English* Flea-wort; *French* Psyllium, Herbe aux puces, Pucière; *Spanish* Zaragatona, Plantago ovata; *German* Flohwegerich, Flohsamen; *Urdu/Unānī* Ispaghul, Asapaghol, Bazr Qutuna; *Modern Standard Arabic* Ḥashīshat al-baswāghiyyah, Ḥashīshat al-barāghīth, Bizr qaṭūnā, Burghūtī, Fasiliyyūn

Safety Rating: Generally Safe Used as herbal remedies since prehistoric times, *Plantago* species are generally considered safe for most people.

Prophetic Prescription: According to the Messenger of Allāh, "You have *ashbiyūsh* which is used as a balm for the stomach." He added, "*Ashbiyūsh* is *bizr qaṭūnā* [*Plantago psyllium*]."[1] A man complained to Imām Muḥammad al-Bāqir about diarrhea. The Imām told him "Take one part of white clay, one part of fleawort seeds, one part of gum arabic (*ṣamgh 'arabī*), and one part of Armenian clay. Boil it over a low fire, and eat of it."[2] According to Imām Ja'far al-Ṣādiq, "He who had a fever, and drank the weight of two or three dirhams of fleawort [*bizr qaṭūnā*] that night, he is protected from pleurisy [*birsām*]."[3]

Issues in Identification: According to Mandaville, *Plantago* is a very important genus in the desert annual flora with several species assuming vernal dominance over extensive areas. The main representatives of the genus include *Pantago amplexicaulis*, *Plantago boissieri*, *Plantago ciliate*,

Plantago coronopus, *Plantago lanceolata*, *Plantago major*, *Plantago ovata*, and *Plantago psammophila*.[4]

According to Bīrūnī, the plant is also known as *qaṭūna* and Said has identified it as *Plantago psyllium*.[5] According to Ghazanfar, psyllium is the dried seeds of *Plantago afra*, *Plantago indica*, and *Plantato ovata*, which is used as demulcents in the treatment of chronic constipation.[6]

There are only two types of *Plantago* with names that resemble the *bizr qaṭūnā* mentioned by Imām Muḥammad al-Bāqir: *Plantago afra* or African plantain, which is known as *lisān al-ḥamal al-ifrīqī*, *'ushbat al-barāghīth*, and *bizirqaṭūnā*, as well as *Plantago ovata*, known in Omani and Saudi as *ḥabbah zargah*, *quraytah*, and *rebal*, and as *biḍr qūṭnū* in Yemeni.

The Imām could not have been referring to *Plantago asiatica*, as the plant is not used for diarrhea. Besides *Plantago psyllium* and *Plantago afra*, *Plantago major* is also used for diarrhea. This latter, however, is a rare plant in the region. According to Hakim Chishti, *Plantago major* is known as *lisān* and *al-ḥamal*. According to Álvarez de Morales and Girón Irueste, *ashbiyūsh* is a synonym for *bizr qaṭunah*.[7]

Properties and Uses: *Plantago psyllium*, known as Spanish psyllium, fleaseed, and fleawort, is a sweet, astringent, cooling herb that moistens the membranes, soothes irritation, and absorbs digestive toxins. It is used internally for constipation and diarrhea and externally for skin irritation and inflamed eyelids. In Ayurvedic medicine, it is used with buttermilk to treat diarrhea and with warm milk for constipation.

Plantago major, known as greater plantain, and rat-tail plantain, is an astringent and demulcent herb that is a diuretic and an expectorant. It promotes healing, and is effective against bacterial infections. Roots and leaves are hemostatic, refrigerant and diuretic. *Plantago major* is used internally for diarrhea, hemorrhage, hemorrhoids, cystitis, bronchitis, excess mucus, catarrh, sinusitis, asthma, hay fever, ear infections, dry coughs, irritated throat, respiratory problems, and gastric ulcers. Externally, fresh leaves are crushed and applied to wounds, insect bites, sores, bruises, ulcers, eye inflammations, shingles, hemorrhoids, and varicose ulcers. It is often used to moderate the irritant effect of herbs containing volatile oils.

Psyllium, in general, is used to treat burns, cancer, chronic bronchitis, chronic diarrhea, constipation, cough, dysentery, fluid retention, hemorrhoids, high cholesterol, immune system problems, poison ivy, skin and mucous membrane inflammation, throat irritation, urinary tract disorders, and wounds.

Scientific Studies: *Safety of Psyllium Supplement* According to the Food and Drug Administration laxative drug products in granular dosage form containing the bulk-forming psyllium ingredients (psyllium hemicellulose, psyllium hydrophilic mucilloid, psyllium seed, psyllium seed [blond], psyllium seed husks, plantago ovata husks, and plantago seed) are not generally recognized as safe and effective and are misbranded. In fact, they have resulted in esophageal obstruction. This caution does not apply to psyllium laxatives in nongranular dosage forms, such as powders, tablets, or wafers. This final rule is part of FDA's ongoing review of OTC drug products.[8]

Cholesterol-Lowering Activity According to the U.S. Food and Drug Administration, "Eating soluble fiber from foods such as psyllium as part of a diet low in saturated fat and cholesterol may reduce the risk of heart disease."[9]

Antidiabetic Activity According to an 8-week, randomized, double-blind, placebo-controlled study conducted by the Institute of Medicinal Plants in Tehran, Iran, 49 subjects with type 2 diabetes were given *Plantato ovata* or a placebo in combination with their anti-diabetic drugs. Fasting blood glucose, and HbA1c, showed a significant reduction, whereas HDL-C increased significantly following psyllium treatment. LDL/HDL ratio was significantly decreased. The results showed that 5.1 g b.i.d. of psyllium for persons with type 2 diabetes is safe, well-tolerated, and improves glycemic control.[10]

Anti-inflammatory Activity In an animal trial conducted by the University of Granada, Spain, dietary fiber supplementation with 5 percent *Plantago ovata* seeds ameliorated the development of colonic inflammation. This effect was associated with an increased production of short-chain fatty acids which can act synergistically in inhibiting the production of pro-inflammatory mediators.[11]

Anticancer Activity In a paired case-control study of 424 people diagnosed with colon cancer conducted by the Community Health Center of Area 4 in Madrid, the consumption of *Plantago ovata* was associated with a reduced risk of colon cancer.[12]

In a 12 month, open label, parallel-group, multicenter, randomized clinical trial of 105 patients with ulcerative colitis, the consumption of *Plantago ovata* seeds appeared to be as effective as mesalamine in maintaining remission. The active compound appears to be butyrate, which is released by *Plantago ovata* seeds during colonic fermentation.[13]

Hypolipidemic Activity According to a study conducted by the University of Sonora in Mexico, Plantago ovata husks is recognized as a potent agent in lowering plasma cholesterol. The study suggests that *Plantago ovata* exerts its hypolipidemic effect by affecting bile acid absorption and altering hepatic cholesterol metabolism.[14]

According to a 6-week, randomized, double-blind, placebo-controlled study of 125 subjects conducted by the Mexican Social Security Institute and Research Group on Diabetes and Chronic Illnesses, with the daily consumption of 5 g t.i.d. of *Plantago psyllium*, fasting plasma glucose, total cholesterol, LDL cholesterol, and triglycerides levels, showed a significant reduction, whereas HDL cholesterol increased significantly following psyllium treatment. The results of the study indicate that 5 g t.i.d. of psyllium is useful, as an adjunct to dietary therapy, in patients with type 2 diabetes, to reduce plasma lipid and glucose levels.[15]

According to a study of 12 patients with non–insulin-dependent diabetes mellitus and ten healthy volunteers, adding *Plantago psyllium* to meals may reduce glycemic index of carbohydrate foods and may help diabetic control.[16]

According to an animal study conducted by the Wistar Institute in the United States, defatted psyllium husk feeding virtually normalized liver size and serum triglyceride levels and produced lower serum total cholesterol levels and higher HDL-cholesterol than observed in normal controls. Defatted psyllium husk feeding also yielded liver lipid values which were in the normal range.[17]

Antioxidative Activity According to a study conducted by the University of Seville, the methanol extracts from five *Plantago* species (*Plantago afra*, *Plantago coronopus*, *Plantago lagopus*, *Plantago lanceolata*, and *Plantago serraria*) all showed antioxidative activity. *Plantago serraria* exhibited the strongest activity as a DPPH scavenger. *Plantago lanceolata* and *Plantago serraria* were found to be the most active in the lipid peroxidation inhibition assay. The study concludes that *Plantago serraria*, in particular, is a possible new source of natural antioxidants.[18]

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Frankincense/ *Kundur, Lubān*

Family: Burseraceae

Botanical Name: *Boswellia carteri*

Common Names: *English* Frankincense, Olibanum tree; *French* Oliban, Arbre à l'encens; *Spanish* Incienso, Olíbano; *German* Echter Weihrauchbaum, Olibanum; *Urdu/Unānī* Luban,

Luban-e-Hindi; *Modern Standard Arabic* Lubān, Lubān dhakr

Botanical Name: *Boswellia serrata*

Common Names: *English* Frankincense, Olibanum tree; *French* Oliban, Arbre à l'encens; *Spanish* No common name; *German* Indischer Weihrauch; *Urdu/Unānī* Kundar, Luban-e-Hindi; *Modern Standard Arabic* Kundur, Lubān

Safety Rating: Generally Safe to Potentially Deadly Internally, true frankincense is only edible if it is pure, translucent, and free of black or brown impurities. The edible product is often light yellow with a very slight greenish tint. Frankincense poses no known health hazards or side effects when consumed in proper therapeutic doses. Some essential oils, however, can be poisonous, and should never be taken internally or applied to the skin. Extreme caution should be taken before consuming or applying the essential oil of frankincense. When non-toxic, and non-irritant, the essential oil of frankincense seems safe for use by most adults. In sensitive people, however, it may cause irritation when applied to the skin. When burned, frankincense may cause respiratory problems in sensitive individuals. Internally or externally, frankincense should not be used during pregnancy or lactation.

Prophetic Prescription: Frankincense has been used for cosmetic and medicinal purposes since the earliest of times. It was associated with longevity and memory in Classical times.[1] The Prophet Muḥammad endorsed the use of the herb, advising people to, "Use frankincense (*kundur*), for it invigorates the heart with courage, and it is a remedy for forgetfulness."[2] He encouraged people to "Fill your homes with the smoke of frankincense (*lubān*) and wormwood (*shīḥ*)"[3] and "Fill your home with incense from frankincense (*lubān*), Syrian rue (*ḥarmal*), wormwood (*shīḥ*), myrrh (*marr*), and thyme (*sa'tar*)."[4] He also said,

> Use incense, which is frankincense, as medicine for it is an incense for all things and all persons which are in a home. Just like God expelled from seventy-two homes every type of demon (*'ifrīt*) which came with open mouths and outstretched hands, they shall also be expelled from every house in which incense is used.[5]

The Prophet allegedly encouraged exposing women to incense while they were pregnant, saying, "Let your women-folk use incense when they are pregnant for verily, the child in the womb will turn out to be a man with a strong heart, and should it be a girl, she will have a beautiful figure and wide hips."[6] He also said, "The best incense is frankincense. It was the incense used by Mary when she was giving birth. The house in which frankincense is used shall never be approached by an envious person, a sorcerer (*kāhin*), a devil or a witch."[7]

The Messenger of Allāh is reported to have mixed water with frankincense (*kundur*), keeping it over night, sweetening it in the morning and drinking it, saying, "It is a good remedy for urinary diseases and loss of memory."[8] A man came to the Messenger of Allāh complaining of memory loss. The Prophet advised him to, "Soak *kundur* in water, take it early in the morning because it helps neurosis."[9]

According to Imām 'Alī, "The recitation of Qur'ān, *al-siwāk* [twig of *miswāk*], and storax are purifiers of phlegm."[10] He also said, "Use frankincense, for it fortifies the heart, and drives out forgetfulness."[11] According to many sources, Imām 'Alī ibn Abī Ṭālib advised reciting the Qur'ān and chewing *kundur* to clear phlegm and to sharpen the memory.

Issues in Identification: According to Bīrūnī, *lubān* is frankincense, and *mā' sā'il* is storax. As Ibn Ḥabīb explains, "*Kundur* is *labān* and *al-ḥaḍḍ* is *kuḥl jawlān*."[12] As Said explains, *lubnah lubnī* is liquid storax obtained from *Liquidambar orientalis.* He further offers that *lubān* is *Olibamum*, especially *Boswellia carteri*, although *Boswellia serrata* and *Boswellia glabra* may also have been meant, while *kundur* and *lubān* are frankincense or *Boswellia serrata*. As Bīrūnī explains, *kundur* is a word of Persian provenance which means frankincense. *Kundur* is the frankincense tree and *nard* is its gum resin.[13] According to Duke, the frankincense of the Bible refers to *Boswellia sacra*, which is synonymous with *Boswellia carteri* (*B. sacra* being the more common descriptor in current usage). According to Ghazanfar, *Boswellia sacra* is found in southern Arabia. In Dhofar, it is found in dry zones, and in wadis extending to the coast on the lower slopes of gullies and run-offs.[14]

Properties and Uses: The oleo-resin of *Boswellia carteri* is called *labān*, whereas that of *B. serrata* is called *Kundur*.

Boswellia (Burseraceae) is a bitter, pungent herb that stimulates the circulation, calms the nerves, and has anti-inflammatory, anti-arthritic, and pain-relieving effects. It is considered demulcent, emollient, aphrodisiac, exhilarant, emmenagogue, stimulant-expectorant, abortifacient, antidiarrhoeal, detersive and resolvent, antiseptic, and tonic. The gum resin of the trunk, exuded when incisions are made and hardened in the open air, is used to treat chronic inflammatory intestinal illnesses (colitic ulcerosa, Crohn's disease), asthma,

bronchitis, diarrhea, obesity, amenorrhea, menorrhagia, polyuria, rheumatism, ulcers, bad breath, scrofulous, syphilis, gonorrhea, sores, ringworm, jaundice, dysentery, dyspepsia, piles, and nervous diseases. Externally, it is used to treat pterygium, epiphora, conjunctivitis, and skin problems. Frankincense is frequently used as a fumigant.

Scientific Studies: *Anticancer Activity* In a study conducted by the Foundation for Collaborative Medicine and Research in Greenwich in the U.K., *Boswellia serrata*, a lipoxygenase inhibitor, was shown to successfully reverse multiple brain metastases in a breast cancer patient who had not shown improvement after standard therapy. The results suggest a potential new area of therapy for breast cancer patients with brain metastases that may be useful as an adjuvant to our standard therapy.[15] In a study conducted by Nihon University in Japan, fifteen compounds exhibited potent cytotoxic activities against all of the three human neuroblastoma cells tested.[16]

Antidiarrheic Activity In an animal study conducted by the University of Naples Federico II in Italy, *Boswellia serrata* gum resin extract was shown to prevent diarrhea, normalizing intestinal motility in pathophysiological states without slowing the rate of transit.[17] These results could explain, at least in part, the clinical efficacy of this Ayurvedic remedy in reducing diarrhea in patients with inflammatory bowel disease.

Anti-inflammatory Activity According to a study conducted by the Ichimaru Pharcos Company in Japan, 16 compounds from *Boswellia carteri* resin exhibit marked anti-inflammatory activity with a 50 percent inhibitory dose.[18] This discovery supports the ethnomedical use of *Boswellia carteri* in the treatment of rheumatoid arthritis and other inflammatory diseases.

In a random, blinded animal study, conducted by University of Maryland, Ruxiang (*Gummi olibanum*), the dried gum resin of *Boswellia carteri*, showed significant anti-arthritic and anti-inflammation effects.[19] The study confirmed the traditional use of Chinese medicine in alleviating pain and inflammation for thousands of years.

Immunostimulating Activity In a study conducted by Mansoura University in Egypt, the essential oil of frankincense was shown to possess strong immunostimulant activity (90 percent lymphocyte transformation) when assessed by a lymphocyte proliferation assay.[20]

Antiarthritic Activity In an 8-week randomized double-blind, placebo-controlled crossover study of 30 patients conducted by Indira Gandhi Medical College in India, *Boswellia serrata* extract was shown to be effective and safe in the treatment of osteoarthritis of the knee.[21] All patients receiving *Boswellia serrata* extract reported decrease in knee pain, increased knee flexion, increased walking, and a decrease in the frequency of swelling. The differences between *Boswellia serrata* and placebo were statistically significant, and clinically relevant. With the exception of minor gastrointestinal issues, the treatment was well tolerated. According to researchers, *Boswellia serrata* extract may also find therapeutic use in other forms of arthritis.

Anti-inflammatory Activity In a study conducted by Universitat Tubingen in Germany, the anti-inflammatory properties of *Boswellia serrata* resin were confirmed.[22] In clinical trials, promising results were observed in patients with rheumatoid arthritis, chronic colitis, ulcerative colitis, Crohn's disease, bronchial asthma, and peritumoral brain edemas.

In a study conducted by the University of the West Indies in Jamaica, two cases of therapy with frankincense and myrrh in children are presented.[23] The long history of this unusual treatment is outlined, demonstrating that for several millennia such agents have been employed in a number of medical contexts, as well as in the perfume and incense industries.

Antiulcer Activity According to a double-blind study, 400 milligrams of *Boswellia*, containing 37.5 percent of gum resins, three times a day for four to eight weeks, may be useful in the treatment of ulcerative colitis.[24]

Frankincense Notes

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Garden Cress/*Thufā'*

Family: Brassicaceae

Botanical Name: *Lepidium sativum*

Common Names: *English* Garden cress, Peppergrass; *French* Passerage cultivée, Cresson alénois; *Spanish* Mastuerzo, Lepido; *German* Gartenkresse; *Urdu/Unānī* Habb-ul-Rashaad, Hurf, Haloon; *Modern Standard Arabic* ʻUṣāb zirāʻī, Rashād, Ḥurf

Safety Rating: Generally Safe Garden cress is generally considered safe when consumed in food quantities. Large consumption, however, can cause irritation of the gut. As it can accumulate heavy metals, it is important to only consume garden cress grown in fresh, clean water. Garden cress should not be consumed during pregnancy or lactation.

Prophetic Prescription: The Prophet Muḥammad stated that "[a]loe (*ṣabir*) and garden cress (*thufā'*) are both cures for an illness."[1] He also said, "You have garden cress (*thufā'*) seed. Allāh made it a cure for every disease."[2]

Issues in Identification: The identity of *thufā'* has been a great source of confusion for translators. Both Akīlī and Johnstone claim that the term embraces both *Lepidium sativum* (garden cress) and *Nasturtium officinale* (water cress).[3] Botanical and linguistic sources, however, seem to suggest otherwise. According to Bīrūnī, *thufā'* is a synonym for *ḥurf*, or *ḥurf al-suṭūḥ*, which Said identifies as *Lepidium sativum* (garden cress). As Bīrūnī explains, the best kind was grown in Iraq, had a pungent taste, and was known to the public as *ḥabb al-rashād*.[4] Ibn Ṭūlūn also identifies *thufā'* as *ḥabb al-rashād*.[5] Abū Nuʻaym al-Iṣbahānī says that it is also known as *banḥūlah* and Turkī identifies it as garden cress.[6] Álvarez de Morales and Girón Irueste also specify that *thufā'* is *Lepidium sativum*.[7] According to Omer Recep, garden cress is also known as *ḥurf bābilī*.[8]

According to Hans Wehr, *ḥabb al-rashād* is *Lepidium sativum*. According to Mandaville, *Lepidium sativum* is rare in eastern Arabia, recorded there only as a weed of farms and gardens, but which might be found on old desert camp sites. It is known in Saudi Arabic as *rashād*.[9] According to Ghazanfar, *Lepidium sativum* is known in Omani Arabic as *rashād* and *rishād*, as *ḥilf* in Yemeni, and as *thufa* in Saudi Arabian. It is native to Egypt and Western Asia.[10] According to Chaudhary, *Lepidium sativum* is a common, widely-distributed, wild and cultivated herb of medicinal importance in Saudi Arabia. It is native to the northern hemisphere.[11]

Properties and Uses: *Lepidium sativum*, known commonly as garden cress, is antiscorbutic, diuretic, and stimulant. The plant is administered in cases of asthma, cough with expectoration, and bleeding hemorrhoids. The root is used to treat secondary syphilis and tenesmus. The seeds are galactogogue, and have been used to induce abortion. Applied as a poultice, the seeds are used to treat pains, and have also been used as an aperient.

Scientific Studies: *Heavy Metal Accumulating Activity Lepidium sativum* has been shown to be a micro-accumulator of heavy metals and is proposed as a biological method to treat sewage. In an experiment conducted by the Technical University of Lodz in Poland, *Lepidium sativum* absorbed 20 percent of the total mercury concentrated in contaminated soil.[12] Another study, conducted by Hort Research in New Zealand, confirmed that *Lepidium sativum* has the ability to

accumulate arsenic present in polluted water. Researchers recommended that the *Lepidium sativum* grown in areas with elevated arsenic should not be consumed.[13]

Antidiabetic Activity *Lepidum sativum* is one of the most common herbs used in Errachidia province in southeastern Morocco to treat diabetes.[14]

Chemopreventive Activity According to an animal trial conducted by the University of Vienna, *Lepidium sativum* possesses chemopreventive activity. Pretreatment with either fresh garden cress juice, or its constituents, glucotropaeolin and benzylisothiocyanate, a breakdown product of glucotropaeolin, for three consecutive days caused a significant reduction in induced DNU damage in colon and liver cells in the range of 75–92 percent.[15]

Antihypertensive and Diuretic Activity According to an animal study conducted in Morocco, the daily oral administration of the aqueous *Lepidium sativum* extract for three weeks exhibited a significant antihypertensive and diuretic activity.[16]

Hypoglycemic Activity In another animal study conducted in Morocco, the aqueous extract of *Lepidium sativum* produced a significant decrease on blood glucose levels in diabetic rats after both a single dose and chronic 15 day repeated administration. Within two weeks of regular treatment, the blood glucose levels were normalized. Researchers concluded that *Lepidium sativum* exhibits potent hypoglycemic activity.[17]

DNA Protective Activity According to a study conducted by the University of Vienna, garden and water cress juices are highly protective against induced DNA damage in human derived cells.[18]

Garden Cress Notes

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Garlic/*Thawm, Fūm, Thūm*

Family: Liliaceae

Botanical Name: *Allium sativum*

Common Names: *English* Garlic; *French* Ail; *Spanish* Ajo; *German* Knoblauch; *Urdu/Unānī* Lehsun, Saum, Seer; *Modern Standard Arabic* Thawm, Thūm

Safety Rating: Generally Safe Although garlic is generally safe for most people, it can cause bad breath, a burning sensation in the mouth or stomach, heartburn, gas, nausea, vomiting, body odor, and diarrhea. Negative side effects are often worse with raw garlic. Garlic should not be consumed in large amount for at least two weeks prior to surgery as it may interfere with normal blood clotting and increase bleeding time. For this reason, it should not be used in large amounts by persons with bleeding disorders, such as hemophiliacs. Likewise, garlic must not be combined with herbs that interfere with blood clotting, such as cat's claw, ginger, ginkgo, ginseng or feverfew. It should not be used by people suffering from

stomach or digestive disorders such as gastritis due to potential gastric irritation. Since garlic can lower blood glucose levels, it should be used with caution in diabetic patients. As it can interfere with iodine metabolism, garlic should not be used in large quantities by patients suffering from thyroid dysfunction. Since large amounts of garlic can induce labor, large quantities should not be consumed during pregnancy. Garlic should also be avoided during lactation. It should not be consumed by patients being treated for HIV/AIDS.

Externally, garlic cloves or preparations should not be applied directly to the skin for periods longer than a few hours as this may result in a severe burn, particularly in small children. In hypersensitive persons, the application or garlic to the skin can cause contact dermatitis. As it may cause serious irritation, garlic oil should not be used to treat inner ear infections in children Finally, chopped garlic and garlic oil preparations are an ideal growth medium for dangerous bacteria like *Clostridium botulinum* when left to stand at room temperature for long hours.

Prophetic Prescription: Garlic and onion, known as *fūm*, *thūm*, *thawm*, and *baṣal*, are mentioned in the Qur'ān in the context of the Exodus (2:61). When garlic and onions were mentioned to the Prophet, he said, "The strongest is garlic." When asked whether it should be forbidden, he responded: "Eat it. And he who eats it should not come near this mosque until its odor goes away."[1] It is reported that the Messenger of Allāh forbade the consumption of fresh garlic and onions prior to interacting with people in the public sphere. As he explained, "He who eats them (garlic and onions) should not come near our mosque. If it is necessary to eat them, make them dead by cooking, that is, onions and garlic."[2] In another tradition, he included leek (*kurrāth*).[3] When Imām Ja'far al-Ṣādiq was asked about eating garlic and onion, he responded that "It is alright to eat them uncooked."[4]

The Prophet was opposed to eating fresh garlic and then mingling with people. He certainly did not oppose its consumption. On the contrary, the Prophet recommended garlic. He said, "Eat garlic. If it were not for the fact that I speak to the Angel, I would eat it myself[5]; "Eat garlic, O people! And treat yourself with it, for it contains a cure for many illnesses"[6]; and "Eat garlic for in it lies the cure for seventy diseases."[7] According to Imām 'Alī al-Riḍā, "He who wants to prevent wind in his body, let him eat garlic once every seven days."[8]

Issues in Identification: It is the consensus that *thawm* is the Arabic term for garlic. Although garlic is generally known as *thawm* in Arabic, the Qur'ānic name is *fūm*. Cultivated garlic is known as *thawm zirā'ī* and several dozen varieties exist.

Properties and Uses: Garlic is a stimulant, carminative, emmenagogue, antirheumatic, anthelmintic, alterative, expectorant, diaphoretic, disinfectant, and diuretic herb. Garlic is also antibacterial and anti-viral, discouraging the growth of Candida, trichomonas, staph, and *E. coli*, as well as intestinal worms. It is used to treat bladder infection, strep throat, vaginosis, yeast infections, and ear infections. It is also used to treat pulmonary problems, high blood pressure, rheumatism, asthma, chronic bronchial catarrh, loss of appetite, and constipation. It is used externally as a liniment or poultice for diseases of the lungs and ringworm. Over 250 studies have been conducted on the impact of garlic on cancer. Garlic use has been associated with lower rates of breast, colon, larynx, esophagus, and stomach cancer. It is also used to treat peptic ulcers. Although a few studies suggest otherwise, over 1,800 scientific studies support the use of garlic in lowering cholesterol and blood sugar levels, preventing heart attack and stroke, and treating infections and cancer.[9]

Scientific Studies: *Antithrombotic, Antitumor, Antifungal, and Antiparasitic Activity* Ajoene, a compound found in garlic, has been shown to possess antithrombotic, antitumor, antifungal, and antiparasitic effects.[10]

Antibacterial Activity The famous microbiologist, Louis Pasteur, performed some of the original work showing that garlic could kill bacteria.[11] Although there is no evidence that taking garlic orally can kill organisms throughout the body,[12] its action outside the body is similar to Bacitracin ointment.[13] From Roman antiquity to World War I it was used in poultices to prevent wound infections.[14]

In 1926, the British government issued a general plea for the public to supply it with garlic in order to meet wartime needs. Garlic was called "Russian penicillin" during World War II because, after running out of antibiotics, the Russian government turned to this ancient treatment for its soldiers.[15]

Both onion and garlic have been shown to inhibit the growth of various types of fungi, thus showing promise in treatment of fungal-associated diseases.[16] As an oil or vinegar, it is used to treat ear and mouth infections. Al-Kindī used garlic for ear pains and for its suppuration, pulsation, fistulas.[17] In clinical trials conducted in China, garlic cured 67 percent of a group of patients with intestinal bacterial infections and 88 percent who had amoebic dysentery.[18] Their blood cholesterol

and lipid levels were also lowered. Researchers noted some success in treating deep fungal infections, whooping cough, lead poisoning, and some carcinomas. Even appendicitis was improved in a number of studies.[19] Low concentrations, approximately one clove per day, have been found to improve digestion, while larger quantities slows the process down.

Cholesterol-Lowering Activity Subjects who ate garlic for six months found that their LDL cholesterol and triglyceride levels went down, while their HDL cholesterol levels increased.[20] As far back as the 1st century A.D. Dioscorides wrote of garlic's ability to "clear the arteries."[21] According to Bratman,

> moderately good studies have found that certain forms of garlic can lower total cholesterol levels by about 9 to 12 percent, as well as possibly improve the ratio of good cholesterol and bad cholesterol. Garlic also appears to slightly improve hypertension, protect against free radicals, and slow blood coagulation. Putting all these benefits together, garlic may be a broad-spectrum treatment for arterial disease.[22]

Over 28 controlled clinical studies of using garlic to treat elevated cholesterol were published between 1985 and 1995. Together, they suggest that garlic can lower cholesterol by about 9 to 12 percent.[23] Virtually all these studies used garlic standardized to alliin content. A recent observational study of 200 individuals suggests that garlic can affect the hardening of the arteries by some unidentified means other than lowering cholesterol or blood pressure.[24] In a multicentric placebo-controlled randomized study involving 261 patients, standardized garlic tablets were shown to be effective in the treatment of hyperlipidemia, lowering total cholesterol values by an average of 12 percent, and triglyceride values by an average of 17 percent.[25] In a 12-week controlled animal study, the administration of *Allium porrum* bulb extract decreased total plasma total cholesterol, indicating that the plant may be useful for the treatment of hypercholesterolemia.[26] In a controlled clinical study of forty-two healthy adults with high cholesterol, LDL cholesterol was reduced by 11 percent by garlic treatment of 300 mg, three times per day, and 3 percent by placebo.[27] One study showed that garlic oil is ineffective.[28]

Antihypertensive Activity Numerous studies have found that garlic lowers blood pressure slightly, typically in the neighborhood of 5 to 10 percent more than placebo.[29] One the best studies showed a statistically significant drop of 11 percent in the systolic blood pressure in the diastolic pressure.[30] Over a period of 12 weeks, half were treated with 600 mg of garlic powder daily standardized to 1.3 percent alliin, the other half were given placebo. Another study suggests that garlic's effects increase if it given a longer time to act.[31] In a 16-week open trial of approximately 40 subjects with mild hypertension, the group treated with standardized garlic experienced a 10 percent drop in systolic blood pressure after four weeks, and a decrease of 19 percent after 16 weeks. Garlic has also been shown to normalize systolic blood pressure levels and can sustain them up to 24 hours.

Cardioprotective Activity In one study, 432 individuals who had suffered a heart attack were given either garlic juice in milk daily or no treatment at all over a period of 3 years.[32] The results showed a significant reduction of second heart attacks and about a 50 percent reduction in death rate among those taking garlic. A study conducted by the Centre for Cardiovascular Pharmacology in Germany, strongly supports the hypothesis that garlic intake has a protective effect on the elastic properties of the aorta related to aging in humans.[33] A study conducted by the University of Queensland concluded that "Kyolic" treatment reduces fatty streak development, vessel wall cholesterol accumulation and the development of fibro fatty plaques in neointimas of cholesterol-fed rabbits, thus providing protection against the onset of atherosclerosis.[34] According to a study conducted by East Carolina University School of Medicine, the effect of garlic preparations on lipids and blood pressure extend also to platelet function, offering wider protection of the cardiovascular system.[35]

Anticancer Activity The natural killer cells of the immune system are dramatically activated by garlic. Many studies point to garlic's antitumor effects. For example, residents in one region of China who do not eat garlic have about 1,000 times higher rates of stomach cancer than those in a neighboring garlic-eating region.[36] Several large studies strongly suggest that a diet high in garlic can prevent cancer. In one of the best studies, the Iowa Women's Study, a group of 41,837 women were questioned as to their lifestyle habits in 1986, and then followed continuously in subsequent years. At the 4-year follow-up, questionnaires showed that women whose diets included significant quantities of garlic were approximately 30 percent less likely to develop colon cancer.[37]

Anti-Viral Activity Recent research suggests that garlic may be able to prevent the common cold.[38]

Heavy Metal Protective Activity Studies of factory workers found that garlic not only detoxified

harmful levels of lead from the blood, but seemed to prevent its accumulation in the first place.[39]

Antidiabetic Activity Many cultures turn to garlic to control mild diabetes. Conflicting clinical studies show it both lowers and raises blood sugar, suggesting that it may regulate insulin.

Antidiabetic Activity Studies have shown that garlic juices exert antioxidant and anti-hyperglycemic effects in diabetic rats, showing potential to alleviate liver and renal damage caused by diabetes.[40] Garlic has been experimentally documented to possess antidiabetic properties.[41] One study showed that only garlic, and not onion or fenugreek, is able to lower blood glucose levels significantly in diabetic rats.[42]

Antimutagenic and Anticarcinogenic Activity According to Justus-Liebig-University in Germany, diallyl disulfide, an oil soluble constituent of garlic, has been reported to cause antimutagenic and anticarcinogenic effects in vitro and in vivo. Garlic has been shown to prevent colon cancer in rats.[43]

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Ginger/*Zanjabīl*

Family: Zingiberacea

Botanical Name: *Zingiber officinale*

Common Names: *English* Common ginger; *French* Gingembre; *Spanish* Jengibre, Jenjibre; *German* Ingwer, Ingber; *Urdu/Unānī* Zanjabeel, Adrak, Sonth; *Modern Standard Arabic* Zanjabīl

Safety Rating: Generally Safe to Dangerous In small amounts, up to four grams per day, ginger is generally safe for most people. Minor side effects occurring in some people include heartburn, diarrhea, and general stomach discomfort. Although it is used to treat morning sickness in early pregnancy, professional advice should be sought before taking large amounts as the effects on the fetus require more study. The consumption of dry ginger, which has different properties and effects than fresh ginger root, should be avoided during pregnancy. Since ginger may stimulate the gall bladder, it should not be used in large doses by patients suffering from gallstones.

As ginger may interfere with normal blood clotting, the herb should not be used at least one week prior to surgery. It should also be avoided by people suffering from a heart condition. Ginger should not be used concurrently with herbal products such as garlic, ginseng or ginkgo which interfere with the normal process of blood-clotting or with pharmaceuticals like aspirin, heparin or warfarin.

Large doses of ginger can be dangerous, causing cardiac effects, and depression of the central nervous system. While ginger is used to treat motion sickness, it should not be combined with medications to treat the same symptoms, such as dimenhydrinate (Dramamine) for example, since their possible interactions are currently unknown. Since ginger can lower blood glucose levels, it should not be used concurrently with medication used to lower blood sugar. When applied to the skin, ginger can cause irritation.

Prophetic Prescription: Although the Qur'ān refers to ginger wine when describing Paradise (76:17), the vast majority of commentators interpret the term *zanjabīl* allegorically. According to Abū Sa'īd al-Khudrī, the Roman Emperor sent a jar of ginger jam to the Messenger of Allāh.[1] As a present, the Prophet gave some to his companions. In *Tafsīr-e-Mazharī*, it is stated that the Arabs were fond of ginger. Mawdudī has also written that the Arabs used to mix ginger with their drinking water.[2] According to Imām 'Alī al-Riḍā, "He who wishes to reduce forgetfulness and increase his memory, let him eat three portions of ginger with honey and *khardal* with his meal every day."[3] The Imām also states that "He who wants to increase in intellect ['*aql*], let him eat three grains of myrobalan (*halīlajāt*) with sugar (*sukkar ublūj*) every day."[4]

Issues in Identification: It is the consensus that *zanjabīl* is the Arabic term for ginger. It is cultivated in some parts of Arabia.

Properties and Uses: *Zingiber officinale*, known commonly as ginger, is a sweet, pungent, aromatic, carminative, sternutatory, stimulant, sialogogue, laxative, antiflatulent, appetitive, rubefacient, anodyne, errhine, sialogogue, warming herb that is expectorant, increases perspiration, improves digestion and liver function, controls nausea, vomiting, and coughing, stimulates circulation, relaxes spasms, and relieves pain.

Internally, ginger is used to treat allergies, asthma, arthritis, bursitis, fibrocystic breasts, lymphedema, pain, atherosclerosis, high cholesterol, cancer, motion sickness, morning sickness, nausea,

vomiting, indigestion, colic, abdominal chills, colds, coughs, strep throat, influenza, and peripheral circulatory complaints. It is used for antonic dyspepsia, flatulent colic, atonic gout, diarrhea, cholera, chronic bronchitis, alcoholic gastritis, corrective to nauseous medicines, condiment. It is also used to treat bacterial infections, parasitic infestation, as well as tumors. It aids digestion, relieves congestion and relieves fever, and soothes sore muscles. Externally, it is used for spasmodic pain, rheumatism, lumbago, menstrual cramps, and sprains.

Scientific Studies: *Renoprotective Activity* According to a study conducted by the Amala Institute of Medical Sciences in India, the use of *Zingiber officinale* alone and in combination with alpha-tocopherol protect the kidney against cisplatin-induced acute renal failure.[5]

Myocardial Necrosis Alleviating Activity According to an animal study conducted by Hamdard University in India, pretreatment with ethanolic *Zingiber officinale* extract alleviates isoproterenol-induced oxidative myocardial necrosis in rats and exhibits cardioprotective properties.[6]

Anticancer Activity According to a paper published by the Industrial Toxicology Research Centre in India, some pungent constituents of ginger have potent antioxidant and anti-inflammatory activities, and some of them exhibit cancer preventive activity in experimental carcinogenesis.[7] According to one review, *Zingiber officinale* is an antiangiogenic through multiple processes that include effects on gene expression, signal processing, and enzyme activities.[8]

Antitumor Activity According to a study conducted by Seoul National University, the rhizome of ginger contains anti–tumor-promoting properties. Another study found that the pungent vanilloids found in ginger possess potential chemopreventive activities.[9] According to an animal trial conducted by CSIRO Health Sciences and Nutrition in Australia, zerumbone from *Zingiber aromaticum* is effective as an anticancer agent, possibly by its apoptosis-inducing and antiproliferative influences.[10]

Antidiabetic Activity According to a 6-week animal trial conducted by L.M. College of Pharmacy in India, the potential antidiabetic activity ginger juice was demonstrated on type 1 diabetic rats.[11] In an animal study conducted by Kuwait University, the hypoglycemic, hypocholesterolemic, and hypolipidemic potential of raw ginger was demonstrated, suggesting its great value in managing the effects of diabetic complications in human subjects.[12]

In a 20-day animal study conducted by Hamdard University in India, the oral administration of *Zingiber* ethanolic extract produced a significant anti-hyperglycemic effect in diabetic rats. The extract also lowered serum total cholesterol, triglycerides, and increased the HDL-cholesterol levels when compared with pathogenic diabetic rats. *Zingiber officinale* extract treatment lowered the liver and pancreas thiobarbituric acid reactive substances values as compared to pathogenic diabetic rats. The results of test drug were comparable to gliclazide, a standard anti-hyperglycemic agent. The results indicate that ethanolic extract of *Zingiber officinale* Roscoe can protect the tissues from lipid peroxidation. The extract also exhibits significant lipid lowering activity in diabetic rats. The study was the first pilot study to assess the potential of *Zingiber officinale* in diabetic dyslipidaemia.[13]

Antiarthritic Activity In a joint U.S./Indian study, a standardized multi-plant Ayurvedic drug (*Withania somnifera*, *Boswellia serrata*, *Zingiber officinale*, and *Curcuma longa*) was evaluated for its efficacy and safety in patients with symptomatic osteoarthritis of the knees. Out of 358 patients with chronic knee pain, ninety were found eligible to enroll in the randomized, double-blind, placebo-controlled, parallel efficacy, single-center, 32-week drug trial. Compared with placebo, the mean reduction in pain in the active group was significantly better. Similarly, the improvement in the scores at week 16 and week 32 were also significantly superior in the active group. This controlled drug trial demonstrated the potential efficacy and safety of an Ayurvedic drug containing ginger in the symptomatic treatment of osteoarthritis of the knees.[14]

Antiallergenic Activity According to a study conducted by the Prince of Songkla University in Thailand, the ethanolic extract of *Zingiber cassumunar* exhibited an antiallergenic effect. These findings support the use in Thai medicine of *Zingiber cassumunar* for treatment of allergy and allergic-related diseases.[15]

Hepaprotective Activity According to an animal study conducted by Lagos State University College of Medicine in Nigeria, the ethanol extract of the rhizome of *Zingiber officinale* provides a protective effect on carbon tetrachloride and acetaminophen-induced liver damage. These results indicate that the oil from the rhizome of *Zingiber officinale* could be useful in preventing chemically induced acute liver injury.[16]

Anti-inflammatory and Hypoglycemic Activity According to an in vitro and in vivo animal study conducted by the University of Durban, the ethanol extract of *Zingiber officinale* rhizomes pos-

sesses analgesic, anti-inflammatory and hypoglycaemic properties. These results lend pharmacological support to the traditional use of ginger in the treatment and/or management of painful, arthritic inflammatory conditions, as well as in the management and/or control of type 2 diabetes mellitus.[17] RMG Biosciences, Inc. has reported that during the past 25 years, many laboratories have provided scientific support for the long-held belief that ginger contains constituents with anti-inflammatory properties.[18]

Radioprotective Activity According to a study conducted by the Institute of Nuclear Medicine and Allied Sciences in India, *Zingiber officinale* possesses antioxidant, radioprotective, and neuromodulatory properties that can be effectively utilized for behavioral radioprotection, efficiently mitigating radiation-induced CTA in both males and females species.[19]

In a 30-day controlled animal study conducted by Kasturba Medical College in India, the hydroalcoholic extract of ginger rhizome was shown to be radioprotective. Pretreatment of mice with *Zingiber officinale* extract reduced the severity of symptoms of radiation sickness and mortality at all the exposure doses. The *Zingiber officinale* extract treatment protected mice against gastrointestinal-related deaths as well as bone marrow–related deaths. Ginger was found to scavenge radicals in a dose-dependent manner in vitro. The drug was nontoxic up to a dose of 1500 mg/kg body weight, the highest drug dose that could be tested for acute toxicity.[20]

Wrinkle-Inhibiting Activity According to an animal study conducted by Jichi Medical School, and Kao Biological Science Laboratories, in Japan, the topical application of an extract of *Zingiber officinale* significantly inhibits wrinkle formation induced by chronic UV-B irradiation, accompanied by a significant prevention of the decrease in skin elasticity. Results indicate that ginger extract has an ability to inhibit fibroblast-derived elastase, proving it potential as an anti-wrinkling agent.[21]

Weight Loss Promoting Activity According to a study conducted by L.M. College of Pharmacy in India, treatment with 250 mg/kg of methanol and ethyl acetate extracts of *Zingiber officinale* for 8 weeks produces significant reduction in body weight, glucose, insulin, and lipid levels as compared to obese control mice. The reduction in elevated glucose along with elevated insulin levels indicates that the treatment with *Zingiber officinale* improves insulin sensitivity.[22]

Anthelmintic Activity In a study conducted by the University of Agriculture in Pakistan, crude ginger powder and crude aqueous extract of dried ginger (1–3 g/kg) were administered to sheep naturally infected with mixed species of gastrointestinal nematodes. Both exhibited a dose- and a time-dependent anthelmintic effect with respective maximum reduction of 25.6 percent and 66.6 percent in eggs per gram of feces on day 10 of post-treatment. Levamisole (7.5 mg/kg), a standard anthelmintic agent, exhibited 99.2 percent reduction in eggs per gram. This study shows that ginger possesses in vivo anthelmintic activity in sheep, thus justifying the traditional use of this plant in helminth infestation.[23]

In an in-vitro study conducted by the Natural Products Research Unit and Prince of Songkla University in Thailand, the anti-giardial activity of chloroform, methanol and water extracts of 12 medicinal plants (39 extracts) was examined. The chloroform extracts from *Zingiber zerumbet* were classified as "active," with an IC50 of <100 microg/ml. This study shows that extracts from some medicinal plants have potential for use as therapeutic agents against *Giardia intestinalis* infections.[24]

Antihyperlipidemic and Antihyperinsulinemic Activity In an animal study conducted by Satsang Herbal Research and Analytical Laboratories in India, the oral administration of 95 percent ethanolic extract of *Zingiber officinale* was confirmed to possess blood glucose lowering effects.[25]

According to a study conducted by L.M. College of Pharmacy in India, methanolic extract of dried rhizomes of *Zingiber officinale* produces a significant reduction in fructose induced elevation in lipid levels, bodyweight, hyperglycemia and hyperinsulinemia. Although treatment with ethyl acetate extract of *Zingiber officinale* does not produce any significant change in either of the last two parameters, it produces a significant reduction in elevated lipid levels and body weight.[26]

Prokinetic and Spasmogenic Activity In a study conducted by the Aga Khan University Medical College in Pakistan, the prokinetic activity of ginger extract was confirmed in an in vivo test. Ginger extract was also shown to contain a cholinergic, a spasmogenic component which provides a sound mechanistic insight for the prokinetic action of ginger.[27]

Antiangiogenesis Activity According to an animal study conducted by Yonsei University in Korea, [6]-gingerol inhibits angiogenesis and may be useful in the treatment of tumors and other angiogenesis-dependent diseases.[28]

Chemopreventive Activity In a 15-week animal trial conducted by Annamalai University in India, administration of ginger significantly decreased the incidence of chemically-induced colon cancer.[29]

Anti-Atherosclerosis Activity In an animal trial conducted by RNT Medical College in India, dried ginger power significantly inhibited (50 percent) the development of atheroma in the aorta and coronary arteries caused by 75 days of cholesterol feeding. There was distinct decrease in lipid peroxidation, and enhancement of fibrinolytic activity in ginger treated animals. Ginger, however, did not lower blood lipids to any significant extent. According to the researchers, the distinct protection against atherosclerosis provided by ginger is probably the result of its free radical scavenging, prostaglandin inhibitory, and fibri properties.[30]

Anti-inflammatory and Anti-thrombotic Activity According to an animal study conducted by the Department of Biological Sciences, Faculty of Science in Kuwait, ginger could be used as a cholesterol-lowering, antithrombotic, and anti-inflammatory agent.[31]

Antiemetic Activity According to a randomized, double-blind study of 180 patients undergoing gynecologic laparoscopy conducted by Philipps-University of Marburg in Germany, ginger failed to reduce the incidence of postoperative nausea and vomiting after these procedures.[32] This study, of course, merely demonstrates that ginger does not combat chemically induced nausea. As has been proven in other studies, ginger is indeed effective in preventing nausea caused by motion sickness and early pregnancy.

Anxiolytic and Antiemetic Activity According to an animal study conducted by Samaj's College of Pharmacy in India, the benzene fraction of a petroleum ether extract of dried rhizomes of ginger possesses anticonvulsant, anxiolytic, and antiemetic activities.[33]

In a double blind, placebo-controlled, randomized clinical trial conducted by the University of South Florida, 26 subjects in the first trimester of pregnancy ingested 1 tablespoon of commercially prepared study syrup (or placebo) in 4 to 8 ounces of hot or cold water 4 times daily over a two week period. After 9 days, 10 of the 13 (77 percent) subjects receiving ginger had at least a 4-point improvement on the nausea scale. Only 2 of the 10 (20 percent) remaining subjects in the placebo group had the same improvement. Conversely, no woman in the ginger group, but 7 (70 percent) of the women in the placebo group, had a 2-point or less improvement on the nausea scale. Eight of the 12 (67 percent) women in the ginger group who were vomiting daily at the beginning of the treatment stopped vomiting by day 6. Only 2 of the 10 (20 percent) women in the placebo group who were vomiting stopped by day 6. It was concluded that the ingestion of 1 g of ginger in syrup in a divided dose daily may be useful for some patients experiencing nausea and vomiting in the first trimester of pregnancy.[34]

Antitumor Activity According to a study conducted by Seoul National University, the phenolic substances in *Zingiber officinale* possess potent antimutagenic and anticarcinogenic activities. The chemopreventive effects exerted by these phytochemicals are often associated with their antioxidative and anti-inflammatory activities.[35]

Aphrodisiacal Activity In controlled toxicity studies on animals conducted by King Saud University in Saudi Arabia on traditional Arab aphrodisiacs, *Zingiber officinale* showed no toxicity and significantly increased the sperm motility and sperm contents without producing a spermotoxic effect.[36]

Anti-Helicobacter pylori *Activity* According to an ongoing screening program conducted by the University of Illinois at Chicago, methanol extract of *Zingiber officinale* (ginger rhizome/root) had an MIC of 25 microg/mL against 15 HP strains while a combination of *Curcuma longa* root and ginger rhizome had a minimum inhibitory concentration of 50 microg/mL.[37]

Ginger Notes

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Grape/*'Inab, Karam*

Family: Vitacea

Botanical Name: *Vitis vinifera*

Common Names: *English* Grape vine, Grape (fruit); *French* Vigne, Vigne noble (fruit); *Spanish* Vid, Parra; Uva (fruit); *German* Weinrebe; Rosine (fruit); *Urdu/Unānī* Angoor, Anab (fruit), Angur, Anb, Kishmish, Saongi, Maveez, Kishmish; *Modern Standard Arabic* 'Inab, Karam

Safety Rating: Generally Safe With the exception of allergic individuals, grapes and grape juice are generally considered to be safe for most people. When consumed in large quantities, however, grapes can cause diarrhea. Other potential side effects of excessive use include stomach upset, indigestion, nausea, vomiting, cough, dry mouth, sore throat, infections, headache, and muscular problems. Grapes or grape juice should not be consumed in medicinal amounts by women who are pregnant or lactating.

Prophetic Prescription: The Holy Qur'ān mentions grapes on six occasions (2:266; 6:100; 13:4; 14:11; 16:67; 17:91; 18:32; 23:19; 36:34; 78:31–32, 80:28).[1] The Messenger of Allāh asked, "Let none of you call grapes ('*inab*) *karam*; *karam* signifies the Muslim."[2] He also said, "The word *karam* is only used for the heart of the believer."[3] And again, "Do not say *karam*, but say '*inab* (grapes), and *ḥabalah*."[4]

According to Abū Dāwūd, the Prophet was fond of grapes and melons.[5] He said, "The springtime of my Ummah is grapes and melons."[6] It is reported that he gave raisins to his companions,

saying "Eat."[7] The Prophet is also reported to have said, "The best of food is bread, and the best of fruit is grapes."[8] He recommended people to, "Eat grapes one by one for thus they are more nourishing."[9] It is also reported that he said, "Noah complained to Allāh about his sorrow. So Allāh revealed to him that he should eat grapes. Then verily his sorrow departed."

Imām Ja'far al-Ṣādiq related that "One of the prophets complained to Allāh out of distress and He ordered him to eat grapes (*'inab*)."[10] In another tradition, he specified that the prophet in question was Nūḥ [Noah].[11]

Issues in Identification: It is the consensus that '*inab* is Arabic for grapes. Akīlī, however, claims that it refers to jujube,[12] and Turkī alleges that it refers to dried pomegranate seeds.[13] As Ghazanfar explains, *Vitis vinifera* is currently cultivated in Arabia in the lower hills.[14] During the early days of Islām, grapes were brought by caravan to Arabia from Bactria, the ancient name for a historical region in Central Asia.[15]

Properties and Uses: *Vitis vinifera* or grape is a sour, astringent, cooling herb that is diuretic, reduces inflammation, controls bleeding, improves circulation, and clears toxins. Grape is considered nutritive, concoctive, tonic, diuretic, deobstruent, resolvent, detersive, stimulant, astringent, diaphoretic, and laxative.

Internally, grape is used for varicose veins, excessive menstruation, menopausal syndrome, hemorrhage, urinary complaints, hypertension, high blood cholesterol, bronchitis, fevers, general debility, irritable stomach, ulceration, gangrene, tetanus, skin rashes, torpor and cellulite. Internally and externally, grape is used for inflammations of the mouth, gums, throat, and eyes. Fruits are the basis of a cure for poor liver function. According to Ibn Buṭlān, grape juice is indicated for "intestinal suffering."

Scientific Studies: *Anticarcinogenic Activity* In a study conducted by the Purdue University, grapes and grape extracts were shown to interact, often synergistically, with decaffeinated green tea extracts in the inhibition of cancer cell growth. Intratumoral injections of a 25:1 mixture of a green tea extract plus ground freeze-dried pomace was nearly as effective as standard synergistic green tea–Capsicum mixtures in inhibiting growth of mammary tumors in mice.[16] In a study conducted by the Ankara University School of Medicine in Turkey, black grape seed extract significantly inhibited the growth of cancerous colon tissues.[17] The study attempts to understand the basis for the beneficial effect of black grape in some kinds of human cancers.

Grape Notes

1. It is important to note that Islām categorically prohibits the consumption of wine and all intoxicant substances. Although wine has some medicinal properties when consumed in moderation, its harmful effects on health, its addictive nature, and the social problems it engenders greatly outway its potential benefits. This is precisely the Qur'ānic position, "They ask thee concerning wine and gambling. Say: 'In them is great sin, and some benefit, for men; but the sin is greater than the benefit'" (2: 219).
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Gum Arabic/*Ṣamgh 'Arabī*

Botanical Identity: *Acacia nilotica* (syn. *Acacia arabica*)

Family: Fabaceae

Common Names: *English* Gum arabic, gum-arabic; *French* Gomme arabe; *Spanish* Goma arábiga; *German* Gummi Arabicum, Gummiarabikum, Ägyptischer Schotendorn; *Urdu/Unānī* Samagh-e-Arabic, Gond Babool; *Modern Standard Arabic* Ṣamgh 'arabī, Umm ghīlān, Ṭalḥ, Aqāqiyā, Samar, Shittim

Safety Rating: Generally Safe Although it can cause gas, bloating, and loose stools, gum arabic is generally considered safe for most adults when used as directed. In individual who are allergic to acacia, gum arabic can cause skin reactions or asthma attacks. Acacia, in any form, should not be consumed during pregnancy or lactation.

Prophetic Prescription: A man complained to Imām Muḥammad al-Bāqir about diarrhea. The Imām told him, "Take one part of white clay, one part of fleawort seeds, one part of gum arabic (*ṣamgh 'arabī*), and one part of Armenian clay. Boil it over a low fire, and eat of it."[1]

Issues in Identification: According to Chaudhary, there are currently sixteen species of acacia in Saudi Arabia, including the common introductions.[2] The species used for their gum resin include *Acacia gerrardii*, *Acacia nilotica*, and *Acacia senegal*. According to Mandaville, *Acacia gerrardii* is a copious producer of gum arabic (*ṣamgh*). It is known in the colloquial dialect as *ṭalḥ*.[3] As Chaudhary explains, *Acacia gerrardii* has a wide distribution in Saudi Arabia. Its distribution in Saudi Arabia, Kuwait, Iraq, and Palestine follows ancient caravan routes.[4] The map of vegetation communities prepared by the Saudi Ministry of Agriculture and Water does not show *Acacia nilotica*. It does show *Acacia gerrardii*, *Acacia tortilis*, and *Acacia ehrenbergiana* around Medina. *Acacia gerrardii* is also shown in central Arabia. Around Mecca, *Acacia tortilis*, *Acacia ehrenbergiana*, and *Acacia commiphra* are also indicated. According to Chaudhary, *Acacia mellifera*, known also as *Acacia Senegal*, is widely distributed on the lower western slopes of the mountains and the submontane level areas in southwestern Saudi Arabia, known in Saudi as *katar*, and *ẓabah*.[5]

Properties and Uses: *Acacia* is a demulcent, emollient, protective, styptic, tonic, astringent, and nutritive herb. Acacia gum forms a protective coating over inflamed tissues, reducing irritation, and encouraging healing. It is used in coughs, laryngitis, gastritis, typhoid fever, dysentery, diarrhea, and diabetes mellitus. Acacia gum is also used to treat burns, sores, leprosy, the common cold, high cholesterol, infections, inflammation, kidney failure, sore nipples, and sore throat. A decoction of acacia bark is used as a gargle and mouth wash while acacia twigs are used to for brushing and flossing one's teeth, particularly for preventing plaque. As a douche, the decoction is used to treat gonorrhea, cystitis, vaginitis, and leucorrhoea. According to Ghazanfar, the resin, leaves, and seeds of *Acacia nilotica* are used for cataracts, as a demulcent, for treating diarrhea, diabetes, and toothache.[6]

As Ghazanfar explains, *Acacia gerardii* resin gum and pods are used for treating sore gums, loose teeth, burns and fevers, while *Acacia nilotica* resin, leaves and seeds are used for cataracts, as a demulcent, for treating diarrhea, diabetes, and toothache. *Acacia senegal* is also widely used to produce gum arabic. It is a soothing herb that forms a protective coating over inflamed tissues, reducing irritation, and encouraging healing. Internally, it is used in lozenges for sore throats, coughs, and mucus, and in commercial mixtures for diarrhea and dysentery. Externally, it is used for burns, sores, and leprosy. As Ghazanfar explains, the bark and resin are believed to be antiseptic. As Maude Grieve clarifies, *Acacia senegal* is not, strictly speaking, synonymous with acacia gum, which originally referred to Sudan, Kordofan or Egyptian Gum. The Prophet was clearly referring to the plant known as both *Acacia nilotica* and *Acacia arabica*.

Scientific Studies: *Demulcent Activity* According to Maude Grieve, the British and American Pharmacopoeia included acacia gum as a demulcent. It was employed as a soothing agent in inflammatory conditions of the respiratory, digestive, and urinary tract, and was useful in diarrhea and dysentery.

Nutritional Activity According to Maude Grieve, acacia gum is highly nutritious. She reports that some Bedouins lived almost entirely on it while they were in the desert, and that it has been proven that 6 ounces is sufficient to support an adult for twenty-four hours.[7]

Nephroprotective Activity Gum arabic is a complex polysaccharide used as suspending agent. It has been widely used by eastern folk medicine practitioners as a restorative agent and is thought to be an excellent curative for renal failure patients. According to an animal study conducted by King Saud University, oral administration of gum arabic appears to protect against nephrotoxicity, partly through the inhibition of the production of oxygen free radicals that cause lipid peroxidation.[8]

Rehydrating Activity According to North Shore University Hospital and New York University School of Medicine, gum arabic is a soluble fiber which enhances water, electrolyte, and glucose absorption. In an animal study, researchers confirmed that oral rehydration solutions supplemented with gum arabic results in optimal recovery from diarrhea. Gum arabic-supplemented rehydration solution had positive effects on fluid and electrolyte absorption.[9]

According to an animal study conducted by North Shore University Hospital and New York

University School of Medicine, gum arabic appears to be an effective enhancer of sodium absorption from oral rehydration solutions when tested in experimental animals. Since gum arabic does not affect viscosity, an alteration of solute diffusibility through the brush border membrane and changes in intercellular compartments may underlie the observed improvement of sodium absorption.[10]

Anti-Plaque Activity According to one study, chewing gum arabic may be useful in fighting dental plaque.[11]

Renoprotective Activity According to a case which took place at the University Hospital in al-Kadhimiya in Iraq, the parents of an 11-year-old girl with end-stage renal failure refused to continue her treatment by dialysis. She was then managed by a new regimen which combined traditional conservative management of chronic renal failure with addition of 1 g/kg per day of acacia gum. After four years of treatment, the patient experienced improved well-being, a good participation in outdoor activities, had never been acidotic, and had never experienced significant uremic symptoms. In short, this is the longest period of dialysis freedom ever reported in children with end-stage renal failure.[12]

Gum Arabic Notes

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Harmal (Syrian Rue)/*Ḥarmal*

Family: Nitrariaceae

Botanical Name: *Peganum harmala*

Common Names: *English* Harmel, Wild rue, Syrian rue, African rue; *French* Hermale, Harmel, Rue sauvage; *Spanish* Ruda siria, Alharma; *German* Syrische Raute, Harmalkraut, Harmelraute, Steppenraute, Wilde Raute; *Urdu/Unānī* Harmal, Hurmul, Ispand; *Modern Standard Arabic* Ḥarmal, Sadhāb barrī

Safety Rating: Generally Safe to Deadly Syrian rue is generally considered safe when consumed in food amounts. In medicinal amounts, it is considered unsafe as it can cause stomach irritation, changes in mood, sleep problems, dizziness, spasms, skin disorders, sensitivity to the sun, and kidney and liver problems. If consumed in excess, Syrian rue causes hallucinations, vomiting, and occasionally death. As such, its consumption should be avoided and, if used, should only be done with expert supervision. In all cases, Syrian rue must not be consumed by women who are pregnant or breast-feeding, as well as people suffering from kidney, liver, stomach, intestinal, or urinary tract problems. The essential oil of Syrian rue is a dangerous abortifacient. Syrian rue should not be applied externally as it is an irritant. Simply handling the foliage, flowers or fruit can cause burning, erythema, itching, and vesication.

Prophetic Prescription: The mystical and medicinal properties of harmal were expounded upon by the Prophet Muḥammad:

> That which grows from harmel (*ḥarmal*), its root, its branches, its leaves, and its flowers, have an angel which protects them until it reaches the end of its growth or dries up. Its root and stem possess the power of a spell. Its seed are a cure for seventy diseases. So treat yourselves with it and with frankincense.[1]

In a variant of this tradition, the Messenger of Allāh says:

> That which grows from harmel (*ḥarmal*), its root, its branches, its leaves, and its flowers, have an angel which protects them until it reaches the end of its growth or dries up. Its root and stem possess the power of a spell. Its seed are a cure for seventy diseases. So treat yourselves with it and with frankincense, making it reach all things and all people in your house. This is the way that all kinds of demons (*'ifrīt*) without open mouths and outstretched hands were expelled from seventy two houses. They will

> be expelled in the same way from the house in which incense is used.[2]

Imām Ja'far al-Ṣādiq further elaborated upon the benefits of wild rue:

> As for harmel, neither its root in the Earth nor its branch in the sky is shaken without there being an angel in charge of it until it becomes debris and becomes what it becomes. For Satan avoids seventy houses in which it is, and it is a healing for seventy illnesses, the least of which is leprosy. So do not be heedless of it.[3]

Imām Muḥammad al-Bāqir prescribed wild rue for bladder infections, "Take harmal and wash it six times in cold water and once in hot water. Then dry it in the shade and mix it with pure and clear oil. Eat it on an empty stomach and it will stop the dripping. Allāh, the Exalted, willing."[4]

The Prophet and the Imāms were referring to *Peganum harmala* (*ḥarmal*), a plant of the Nitrariaceae family. It is sometimes known as Syrian rue, a confusing name, as it is not related to rue (*Ruta graveolens*) from the Rutaceae family. Harmal has a long history of use in European and Middle Eastern herbalism. In fact, rue was an essential ingredient in many antidotes and cure-alls from Greco-Roman times to the mid 19th century. In al-Kindī, rue is used to treat phlegm, rheumatism, and nervous conditions.[5] He also uses it for insanity, epilepsy, and as an antidote to all kinds of poisons.[6] In Egypt, the seeds are used as a diuretic and vomitive while in Iran they are considered an aphrodisiac.[7]

Issues in Identification: According to Hans Wehr, *ḥarmal* is Arabic for *Peganum harmala*, known in English as wild rue, Syrian rue, and African rue. As Nehmé explains, *ḥarmal* or common peganum is known as *ḥarmal* and *ghalqat al-dhi'b*.[8] According to Bīrūnī, *ḥarmal* is also known as *ghalqah* and *iẓlam*, which Said identifies as *Peganum harmala*. Bīrūnī also speaks of *ḥarmal abyaḍ*, *ḥurmal*, *ghalqat al-dhi'b*, and *sadhāb barrī*, which are all equally identified by Said as *Peganum harmala*.[9]

According to Mandaville, *Peganum harmala* is rare in eastern Arabia, found only as a weed or ruderal, nearly always on disturbed ground. It is well known in central and northern Arabia and Iraq. It is known in the Saudi dialect Arabic as *khiyyās* (stinkweed), *shajarat al-khunayzir*, as well as *ḥarmal*. The herb is found in sandy areas in Saudi Arabia. It is important to note that in the Saudi and Omani Dhofari dialects, *ḥarmal* is also the name given to *Rhazya stricta*. Although somewhat toxic, some elder Bedouins consider that smoking its dry leaves is an effective treatment for rheumatism. It is used for improving bad breath, chest pain, for conjunctivitis, constipation, and diabetes. It is also employed to lower fevers, to treat skin rash, as an anthelmintic, and to increase lactation.[10]

Properties and Uses: *Peganum harmala*, known commonly as harmal or Syrian rue, is much used in Arab medicine and is mentioned in early Muslim medical literature. It is a bitter, spicy, diuretic herb that stimulates the uterus and digestive system, and is reputedly aphrodisiac. It is considered hypnotic, sedative, alterative, antiperiodic, emmenagogue, lactagogue, expectorant, antiflatulent, anthelmintic, and abortifacient.

Peganum harmala is used internally for stomach complaints, urinary and sexual disorders, epilepsy, menstrual problems, nervous and mental illnesses, amnesia, sciatica, colic, and jaundice. It is used externally for hemorrhoids and baldness.[11] Dental cavities are fumigated by burning the seeds while the powdered seeds are used to treat tape worms, as well as intermittent and remittent fevers.

Scientific Studies: *Antioxidative Activity* In a study conducted by the University of Sherbrooke in Canada, the protective effect of *Peganum harmala* extract and the two major alkaloids (harmine and harmaline) from the seeds of *Peganum harmala* were investigated for their protective effect against induced LDL oxidation, which has been implicated in the process of atherogenesis.[12] Harmaline and harmine reduced the rate of vitamin E disappearance and exhibited a significant free radical scavenging capacity. However, harmaline had a markedly higher antioxidant capacity than harmine in scavenging or preventive capacity against free radicals as well as inhibiting the aggregation of the LDL protein moiety (apolipoprotein B) induced by oxidation. The results suggested that *Peganum harmala* compounds could be a major source of compounds that inhibit LDL oxidative modification induced by copper.

Antitumor Activity In an animal study conducted by Sun Yat-sen University in China, administration of harmine derivatives resulted in tumor inhibition rates of 15.3–49.5 percent. While most of these compounds showed remarkable acute neurotoxicities, two of them had high antitumor activity and low toxicity, and might be chosen as lead molecules for further development. On the basis of these results, the researchers called for more studies on the effects of harmine derivatives on key regulators for tumor cell apoptosis.[13] In a study conducted by Faculté de médecine et de Pharmacie de Rabat in Morocco, the alkaloids of *Peganum harmala* were found to have significant antitumor activity. The study supports the Moroccan use of *Peganum harmala* to treat

subcutaneous tumors, and suggests that the herb could prove useful as a novel anticancer therapy.[14]

Toxic Activity Harmaline, the active principle of the plant seeds, and its derivatives, cause visual troubles, loss of coordination, agitation and delirium, and, at high doses, it can produce paralysis. The Laboratoire de Pharmacologie et Toxicologie of the Faculté de Medecine et de Pharmacie de Rabat in Morocco assessed the toxicity of *Peganum harmala* seeds. The study evaluated the use and manipulation of therapeutic doses of aqueous extract of *Peganum harmala* in animal subjects. It found that therapeutic doses of *Peganum harmala*. Histologic study showed liver degeneration and spongiform changes in the central nervous system in rats treated with 2g/kg dose but not at the therapeutic dose of 1g/kg. The study confirmed that *Peganum harmala* can be used safely according to therapeutic doses and warms of the dangers of exceeding the recommended dosage.[15]

Anti-Parkinsonian Activity Historically, the use of alkaloids of the belladonna, harmala, and aporphine families were used in the treatment of Parkinson's disease since the original description of the malady in 1817.[16] In his 1991 article on Banisterine and Parkinson's disease, Sanchez-Ramos observed that 63 years had passed since Louis Lewin reported the use of a hallucinogenic compound prepared from the South American vine, *Banisteria caapi*, to treat Parkinson's disease.[17] This psychoactive compound, named banisterine, proved to be identical to harmine, but 30 years were to pass before it was shown to be a reversible monoamine oxidase inhibitor. The first reports of the use of banisterine to treat postencephalitic Parkinsonism in 1929 created a stir in the popular press and banisterine was hailed as a "magic drug." Despite continued studies of the harmala alkaloids by other researchers, interest in the therapeutic value of these compounds vanished during the 1930's. The story of banisterine is reviewed in this paper as it was the first MAO inhibitor to be used in Parkinsonism, and illustrates the historical role of psychoactive drugs in the development of effective therapies, and in elucidating the pathophysiology of Parkinson's disease.

Harmal Notes

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Henna/*Ḥinnā'*

Family: Lythraceae

Botanical Name: *Lawsonia inermis* (syn. *Lawsonia alba*)

Common Names: *English* Henna plant, Egyptian privet; *French* Henné, Henneh; *Spanish* Henna, Alheña; *German* Hennastrauch, Ägyptischer Hennastrauch; *Urdu/Unānī* Mehandi, Hina; *Modern Standard Arabic* Ḥinnā', al-Qaṭab

Safety Rating: Generally Safe to Deadly Pure henna is generally safe, but henna preparations are potentially lethal and consequently henna should only be used internally with expert supervision. It is only safe as a hair dye. Commercial preparations of henna paste, which are used for body decoration, are poisonous. They often contain other ingredients, including para-phenylene-

diamine or PPD, which can cause allergic reactions, such as red rash, contact dermatitis, itching, blisters, open sores, scarring of the skin, and other potentially harmful effects. Other allergic reactions to PPD include sensitivity to hair dye, sun block, and some types of black clothing. Sensitivity to PPD is lifelong. Once sensitized, the use of synthetic hair dye can be life-threatening. Some pastes include silver nitrate, carmine, pyrogallol, disperse orange dye, and chromium, which can cause allergic reactions, chronic inflammation, or late on-set allergic reactions to hairdressing products and dyes used in textiles. Some medical studies found heavy metals such as nickel, cobalt, lead, and mercury in henna tattoos. In people with glucose-6-phosphate dehydrogenase deficiency, the application of henna to the skin can cause life-threatening haemolysis. As such, henna must never be used internally, and it should be used externally with the greatest of caution. Due to the dangerous chemicals it contains, henna paste should not be applied externally to the skin of women who are pregnant or lactating. Even pure henna exhibits antifertility activity in animals, and may induce menstruation. It is ironic that a plant that prevents fertility is considered the symbol of fertility in the Arab world and India.

Prophetic Prescription: The Messenger of Allāh said, "Allāh created no plant more pleasing to Him than henna."[1] According to Anas ibn Malik, the herb most beloved by the Messenger of Allāh was henna blossom.[2] He said, "The lord of sweet smelling blossoms, in this world and the next, is henna blossom (*fāghiyyah*)."[3] Showing the great value of henna, the Prophet said, "Giving one dirham in the path of Allāh is the equivalent of seven hundred for another purpose, and giving one dirham's worth of henna is equal to nine thousand."[4] He also said, "There are five things taken from the books of the Prophets: cupping, perfume, *miswāk*, henna, and having multiple wives."[5]

The Messenger of Allāh recommended henna as a dye, saying, "The best way to hide old age (grey hair) is through henna (*ḥinnā'*) and indigo (*katam*)."[6] When he saw a man who had dyed his hair with henna, the Prophet said, "That is good." He then saw a man who had dyed his hair with both henna and indigo and said "That is better."[7]

The Messenger of Allāh prescribed henna for various ailments. According to Umm Salamah, "The Prophet, may Allāh bless him and grant him peace, never suffered from a wound or a thorn without putting henna on it."[8] He also told a man who complained of pain in his legs to dye them with henna.[9] According to Abū Hurayrah, when the Prophet suffered from migraines as a result of the receiving revelation, he would apply henna to his head.[10] According to Ibn Ḥabīb, the Prophet used to apply henna to scratches, wounds, ulcers, and would apply henna to his head for headaches.[11]

The Messenger of Allāh said, "Dye your hair with henna for it increases youth and virility" and "Dye your hair with henna for it has a pleasant smell and removes vitiligo."[12] He also said, "Make use of henna, the best of all dyes, for henna strengthens the skin and increases virility."[13] He is also reported to have said, "Henna is the dye of Islām. The use of it increases the good deeds of the faithful. It drives away headache, sharpens vision, and increases sexual powers. It is the master of all perfumes in this world and the next."[14] Finally, the Prophet is reported to have said, "Verily, if a cure resides in anything, it resides in henna."[15]

Imām Ja'far al-Ṣādiq recommended the use of henna for cases of leprosy and vitiligo. He instructed a patient to "Enter the steam bath and mix henna [*al-ḥinnā'*] with lime and coat your body with it. You will not be cured by anything else after that." The man said, "By Allāh, I did that only once and Allāh cured me, and it did not recur after that"[16] Imām Ja'far al-Ṣādiq "Do not have intercourse with your wife while you have your hair dyed, for if you are blessed with a child, it will be effeminate or a hermaphrodite (*mukhannath*)."[17]

Issues in Identification: It is the consensus that *hinna* is Arabic for *Lawsonia* and that *fāghiyyah al-ḥinna'* refers to henna blossom. Although it is true that some classical authors have referred to henna as *kāfūr*, Farooqi's claim that the camphor of the Qur'ān and the Sunnah is actually henna has been proven false through peer-review. As Duke points out, the dye of *Lawsonia alba* was known as puker by ancient Egyptians, *kupr* or *kuder* by the Copts, *kufra* in Aramaic and Accadian, *kopfer* in Hebrew, and *kaffūr* in Arabic.

While the identity of *ḥinnā'* is clear, there are differences of opinion regarding that of *fāghiyyah*. For Elgood and Turkī, it refers to henna blossom.[18] According to Akīlī *fāghiyyah* is Costmary, known as *chrysanthemum balsamita*.[19] Costmary, of course, is a European aromatic plant, smelling of tansy and used as a potherb and for salads. Costmary is not henna blossom. Furthermore, there is not a single chrysanthemum which bares an Arabic name remotely resembling *fāghiyyah*. As Said explains, *fāghiyyah* means privet-flower and it refers to *Zanthoxylum rhetsa*. *Z. alatum Roxb. Z. acanthopodium*, and *Z. Oxyphyllum*.[20] For all intents and

purposes, the Prophet must have been referring to *fāghiyyat al-ḥinnā'* which are Meccan henna buds.

According to Ghazanfar, *Lawsonia inermis* is found throughout Arabia in disturbed soil and waste places. It is also widely cultivated in Arabia.[21] According to Mandaville, *Lawsonia inermis* is not infrequently cultivated as an ornamental in eastern Arabia and is sometimes found apparently spontaneous on waste ground or along roadsides in oasis areas. Its ability to self-propagate in eastern Arabia is questionable. It is known in Saudi Arabic as *ḥenna*, *hinnā, and hinā*.[22]

Properties and Uses: *Lawsonia inermis*, known commonly as henna, is considered astringent, antihemmorrhagic, cardio-inhibitory, hypotensive, detergent, alternative, refrigerant, tonic, antibacterial, and sedative. It is used for amebic dysentery, leprosy, wounds, ulcers, itching, scabies, pruritis, syphilis, jaundice, and herpes. As a folk medicine, it has been used as a remedy against amoebiasis, and headache. Henna extract shows antibacterial, antifungal, and ultraviolet light screening activity.

Antioxidative Activity In a study conducted by Mansoura University in Egypt, isolated compounds from the methanolic extract of henna leaves were found to possess an antioxidative activity comparable to that of ascorbic acid.[23]

Antimicrobial and Antibacterial Activity In an in vitro study conducted by Sultan Qaboos University in Oman, crude extracts of fresh and dry leaves and seeds were investigated for their antimicrobial activity against 3 standard bacterial strains namely: *Staphylococcus aureus*, *Escherichia coli* and *Pseudomonas aeruginosa*. All fresh and dry leaves and seeds of the Omani henna demonstrated antibacterial activity against all 3 standard strains and the 11 patients' isolated strains. Henna dry leaves demonstrated the best in-vitro antimicrobial activity and in particular against *Shigella sonnei*. However, henna fresh and dry seeds failed to show any activity against *Candida albicans*. Omani henna, however, does possess in-vitro antibacterial activity against a wide spectrum of bacterial strains and *Candida albicans*.[24]

Hepaprotective Activity In an animal study conducted by Nagpur University in India, the aqueous extract of *Lawsonia alba* bark was shown to possess hepaprotective and antioxidative activity.[25]

Anti-inflammatory, Antipyretic and Analgesic Activity In a study conducted by the United Arab Emirates University, crude ethanolic extract of *Lawsonia inermis* L. (0.25–2.0 g/kg) produced significant and dose-dependent anti-inflammatory, analgesic, and antipyretic effects in rats. The anti-inflammatory effect of lawsone (500 mg/kg) was not significantly different from that of the reference drug phenylbutazone (100 mg/kg).[26]

Tuberulostatic Activity In in-vivo animal studies conducted by S. M. S. Medical College in India, a dose of 5 mg/kg body weight of *Lawsonia inermis* led to significant resolution of experimental tuberculosis.[27]

Antifertility Activity According to an animal study, a daily dose of 3, 30, or 300 mg of *Lawsonia inermis* showed a 40–60 percent inhibition of pregnancy. The infertility produced by the powdered leaves of *Lawsonia inermis* appeared to be permanent.[28]

Henna Notes

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Indigo/*Kutm*, *Wasmah*

Family: Fabaceae

Botanical Name: *Indigofera tinctoria*

Common Names: *English* Dyer's indigo plant, indigo plant; *French* Indigotier, Anil; *Spanish* Índigo; *German* Indigopflanze; *Urdu/Unānī* Neel, Wasmah, Katam; *Modern Standard Arabic* Nīl, Nīlnaj, wasmah, nīlah, naylaj, laylanj

Safety Rating: Generally Safe to Deadly *Indigo tinctoria* is generally considered safe as a hair dye. Besides occasional allergic reactions, it is generally considered safe for consumption for most people. However, since comprehensive tests have not been performed, it should not be used by pregnant or lactating women, young children, and individuals with severe kidney or liver disease. *Indigofera spicata*, and other species, are poisonous, and have been found to be lethal. For this reason, indigo should never be ingested internally unless one is absolutely certain that it has been harvested and processed by reliable experts.

Prophetic Prescription: The Messenger of Allāh said, "The best you can use for changing the color of white hair are henna (*ḥinnā*) and indigo (*katam*)."[1] When he said a man who had dyed his hair with henna, the Prophet said, "That is great." He then saw a man who had dyed his hair with both henna (*ḥinnā*) and indigo (*kutm*) and said, "That is even better."[2] The Prophet himself used to die his hair with henna.[3]

Issues in Identification: According to Bīrūnī, *wasmah* is also known as *khiṭr*. Said identifies the plant as indigo (*Indigofera tinctoria*) and stresses that the accepted orthography is *wasmā* and that the current orthography for *khiṭr* is *khaṭr*.[4] Álvarez Morales and Girón Irueste also translate *khaṭr* as *Isatis tinctoria*, L.[5] Johnstone and Turkī also identify *katam* as *Indigofera tinctoria*.[6] Turkī, however, holds that *wasmah* is *Memeceylon tinctorium*.[7] According to Bīrūnī, '*iẓlām* is indigo plant (*Indigofera tinctoria*) while *wasmah* is the leaf of indigo (either *Indigofera tinctoria* or *Isatis tinctoria*).[8] For Elgood, *kutm* and *wasmah* both refer to indigo leaf.[9] Bīrunī and Ibn al-Jawziyyah say that *nīl* and *ward al-nīl* is also *wasmah* (*Indigofera tinctoria*).[10] He says that *al-wasmah al-hindiyyah* is called '*iẓlim* in Arabic. Dīnawarī, says that *katam* leaves are dried, ground, and mixed with henna, as a hair dye, to make them thick and black. He says that the tree grows in the mountains and that its leaves are like those of *ās* (myrtle). Dīnawarī also explains that '*iẓlām* is the male *wasmah* plant, which grows a lot in India, that it is very green, and that its dried juice is called *nīlanj*.[11] On the basis of these descriptions, *katam* can be clearly identified as *Indigofera tinctoria*. Various species of *Indigofera* are found throughout Arabia.

Properties and Uses: *Indigofera tinctoria*, known commonly as indigo, is used to treat bleeding disorders, boils, carbuncles, diabetes, fever, hemorrhoids, inflammation, infant seizures, mumps, ovarian cancer, pain, scorpion bites, stomach cancer, toothaches, to reduce pain and to induce vomiting, as well as to detoxify the blood and to purify the liver. *Indigofera tinctoria* is believed to be the active ingredient in a traditional Chinese medicine used to treat chronic myelocytic leukemia. In large doses it can cause gastro-intestinal irritation, debility, and nervous derangements.

Scientific Studies: *Antidyslipidemic Activity* In an animal study conducted by the Division of Medicinal and Process Chemistry in India, a diastereomeric flavonoid mixture from the aerial parts of *Indigofera tinctoria* were found to significantly reduced plasma triglycerides by 60 percent, total cholesterol by 19 percent, glycerol by 13 percent, and free fatty acid by 25 percent, along with an increase in HDL by 8 percent, and an HDL-C/TC ratio of 36 percent.[12]

Hepaprotective Activity In an animal trial conducted by the University of Madras in India,

Indigofera tinctoria extract was shown to possess hepaprotective effects in rats.[13] Treatment with diastereomeric flavonoid mixture 1 and 2 (80:20) significantly decreased the plasma triglycerides by 60 percent, total cholesterol 19 percent, glycerol 13 percent, and free fatty acid 25 percent accompanied with increase in high density lipoproteins-cholesterol (HDL-C) by 8 percent and HDL-C/TC ratio 36 percent in high fat diet fed dyslipidemic hamsters at the dose of 50 mg/kg body weight.

In a study conducted by the Regional Research Laboratory in India, a bioactive fraction, indigtone, obtained by fractionation of a petroleum ether extract of the aerial parts of *I. tinctoria*, showed significant dose related hepatoprotective activity against induced liver injury in rats and mice.[14]

Immunostimulating Activity Several studies suggest that wild indigo (*Baptisia tinctoria*), which is native to the central and eastern United States and Canada, may stimulate the immune system.[15]

Indigo Notes

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Jasmine/*Yāsamīn, Zanbaq*

Family: Oleaceae

Botanical Name: *Jasminun officinale*

Common Names: *English* Poet's jasmine, white flowered jasmine, jessamine; *French* Jasmin commun, Jasmin blanc; *Spanish* Jazmín; *German* Echter Jasmin, Weißer Jasmin; *Urdu/Unānī* Chameli, Chanbeli, Yasmeen; *Modern Standard Arabic* yāsmīn, sajlāṭ

Safety Rating: Generally Safe Jasmine is generally considered safe for most people in quantities normally consumed as food. In some cases, however, it may cause allergic reactions. Since the safety of jasmine in medicinal doses has not been determined, it should not be consumed by women who are pregnant or lactating.

Prophetic Prescription: The Prophet Muḥammad stressed the benefits and healing properties of jasmine. According to the Messenger of Allāh, "[t]here is no oil more beneficial for the body than the oil of jasmine. In it are numerous benefits and healing for seventy illnesses."[1] On one occasion, he said, "[t]here is nothing better for the body than *al-rāziqī*." He was asked "[w]hat is *al-rāziqī*?" and replied that it was "Jasmine."[2]

The Imāms from the Household of the Prophet also encouraged the use of jasmine. Imām Ja'far al-Ṣādiq stated that "Jasmine is the most excellent thing with which you oil your body."[3] He once told his followers to "[u]se *al-kays* and anoint yourselves with it, for in it is a healing for seventy illnesses." He was asked, "O son of the Messenger of Allāh, what is *al-kays*?" He replied, "Jasmine, that of the *al-rāziqī* variety."[4]

A patient came to Imām 'Alī al-Ridā complaining from severe cold in the head. The Imām wrote to him saying "You must inhale ambergris and

jasmine (*al-zanbaq*) after eating. You will be cured of it, Allāh, the Sublime and Majestic, willing."[5] A man complained to Imām al-Ṣādiq that he was detained by a wind penetrating (*rīḥ shabīkah*) penetrating him from head to feet. He told him to "Inhale ambergris (*al-'anbar*) and mercury (*al-zaybaq*) on an empty stomach and you will be cured of it, Allāh, the Exalted, willing."[6]

Issues in Identification: It is the consensus that *yāsamīn* is Arabic for jasmine. According to Bīrūnī, the flower is also known as *samsiq*, *siḥlat*, *ysamūn*, and *yasam*. The *rāziqī* refers to the yellow variety which, in all likelihood, refers to *Jasminun fruticans*, known as yellow jasmine, which bares the Arabic names *yāsamīn daghalī*, *yāsamīn barrī*, and *yāsamīn aṣfar*.[7] The extracted oil or *duhn* is known as *zanbaq*. According to Ghazanfar, *Jasminum grandiflorum* occurs in South Western Arabia. Species of jasmine, such as *Jasminum sambuc*, are widely cultivated in Arabia for their fragrant flowers.[8] It is imperative that true yellow jasmine (*Jasminum odoratissimum*) not be confused with yellow jasmine, the common name given to *Gelsemium nitidum*, which is also known as false jasmine, wild woodbine, and Carolina jasmine. The latter is a powerful spinal depressant which is lethal in even moderate doses, causing respiratory failure.

Properties and Uses: *Jasminun officinale*, known as common jasmine, poet's jasmine, and jessamine, is aromatic, tonic, calmative, euphoric, aphrodisiac and antispasmodic herb, with aphrodisiac and antiseptic effects, that increases milk flow and stimulates the uterus. It is used to treat rheumatism, and gout. It is also used in aromatherapy for depression, nervous tension, impotence, frigidity, menstrual disorders, respiratory disorders of nervous origin, and weak digestion.

Jasminum grandiflorum, known as royal jasmine and Spanish jasmine, is a bitter astringent, cooling herb that calms the nerves, checks bleeding, and stimulates the uterus. Regarded as an aphrodisiac for women and an alterative, it is reputedly effective against various cancers, and bacterial and viral infections. Internally, it is used mainly in Ayurvedic medicine, for infectious illnesses with high fever, complaints involving bleeding, sunstroke, conjunctivitis, dermatitis, urethritis, cancer (especially Hodgkin's disease and cancers of the bone, lymph nodes, and breast), emotional upsets, and headaches. It is often combined with *Santalum album*.

Scientific Studies: *Anticancer Activity* In an animal study conducted by Annamalai University in India, oral administration of ethanolic extract of *Jasminum grandiflorum* flowers for 14 weeks completely prevented the formation of tumors in the pre-initiation period. The ethanolic extract also exerted significant anti–lipid peroxidative effect, and improved the antioxidant defense system. The results of this study clearly indicate that *Jasminum grandiflorum* ethanolic extract has potent chemopreventive efficacy in experimental mammary carcinogenesis, warranting further studies to isolate and characterize the bioactive principle.[9]

In a study conducted by Annamali University in India, oral administration of ethanolic extract of *Jasminum grandiflorum* flowers for 14 weeks completely prevented the formation of chemically-induced mammary tumors in rats.[10] *Jasminum grandiflorum* also exerted significant anti–lipid peroxidative effect and improved the antioxidant defense system in the treated rats. The study concludes that *Jasminum grandiflorum* has potent chemopreventive efficacy in experimental mammary carcinogenesis and further studies are warranted to isolate and characterize the bioactive principle.

Anti-inflammatory and Anti-Nociceptive Activity In a study conducted by Jordan University of Science and Technology, the ethanolic extract of *Jasminum officinale* was found to possess anti-inflammatory effects which were dose dependent, confirming the plant's use for painful and inflammatory conditions.[11]

Lactation Suppressing Activity In a study conducted by the Christian Medical College in India, the application of *Jasminum sambac* flowers was shown to be an effective and inexpensive method of suppressing puerperal lactation which can be used as an alternative in situations where cost and nonavailability restrict the use of bromocriptine.[12]

Jasmine Notes

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Leek/*Kurrāth*

Family: Alliaceae

Botanical Name: *Allium porrum*

Common Names: *English* Leek; *French* Poireau; *Spanish* Puerro; *German* Porree, Lauch, Breitlauch, Winterlauch, Borree, Welschzwiebel, Gemeiner Lauch, Spanischer Lauch, Aschlauch, Fleischlauch; *Urdu/Unānī* Piyaz; *Modern Standard Arabic* kurrāth

Safety Rating: Generally Safe

Prophetic Prescription: It is reported that the Messenger of Allāh forbade the consumption of fresh garlic and onions prior to interacting with people in the public sphere. As he explained, "He who eats them [garlic and onions] should not come near our mosque. If it is necessary to eat them, make them dead by cooking"[1] In another tradition, he included leek (*kurrāth*).[2] When Imām Ja'far al-Ṣādiq was asked about leek, he said, "Eat it for it has four benefits: it gives good taste, it chases the wind, it stops hemorrhoids, and it is a protection against leprosy (*al-judhām*) for the one who uses it regularly."[3]

Issues in Identification: It is the consensus that *kurrāth* is the Arabic term for leek. It is difficult to determine, however, the precise variety referred to by the Prophet and the Imāms. By *kurrāth*, they may have meant *Allium porrum* or leek, *Allium ampeloprasum* or Levant garlic (which includes elephant garlic), or perhaps *Allium ampeloprasum* of the kurrat group, which includes salad leek or *kurrāth nabātī*, which is believed to be the leek of ancient Egypt.

Scientific Studies: *Hypolipidemic Activity* According to a controlled 12-week animal trial conducted by Isfahan University of Medical Sciences in Iran, *Allium porrum* was shown to significantly decrease LDL cholesterol. As a results, the researchers suggest that leek may be useful for the treatment of hypercholesterolemia.[4]

Antioxidative Activity According to a lab study conducted by Tehran University of Medical Sciences in Iran, leek shows an antioxidative activity comparable with those of dl-alpha-tocopherol and quercetin.[5]

Leek Notes

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Lemon Balm/*Bādharūj*

Family: Lamiaceae

Botanical Name: *Melissa officinalis*

Common Names: *English* Lemon balm, Balm, Common balm, Bee-balm, Balm-leaf; *French* Mélisse, Citronelle, Piment-des-abeilles; *Spanish* Melisa, Toronjil; *German* Zitronenmelisse, Melisse, Citronenmelisse, Gartenmelisse, Herzkraut; *Urdu/Unānī* Badaranjboya, Badarangboya, Mufarrehul Quloob, Muffarehul Qalb, Billi Lotan; *Modern Standard Arabic* ḥashīshat al-naḥl, turunjān

Safety Rating: Generally Safe Lemon balm is generally considered safe for most people when used as directed. It should not, however, be consumed by patients taking thyroid medication such as thyroxine as it might inhibit the absorption of this medicine. Lemon balm may cause drowsiness, and should not be consumed by women who are pregnant or lactating. The International Fragrance Association's 42nd amendment prohibited the use of Melissa oil (essential oils are highly concentrated and therefore potentially more dangerous than the raw herb), though that prohibition was later relaxed.

Prophetic Prescription: Imām 'Alī al-Riḍā used to say "Lemon balm (*al-bādharūj*) for us and watercress (*al-jirjīr*) for the Banū Umayyah."[1]

Issues in Identification: According to Dīnawarī, *bādharūj* is also known as *ḥawk* and *ẓawmarān*.[2] Although it is most commonly known as *turunjān makhzanī*, *ḥashīshat al-naḥl* in Arabic, *Melissa officinalis* is also known as *bādharūj*. Ispahany should not have translated the term as "mountain balm" as this refers to *Eriodictyon californicum* L. and *Eriodictyon glutinosum*, known by its Spanish name of *Yerba santa*, a plant which is native only to the southwestern United States. *Melissa*, of course, is native to southern Europe, western Asia, and northern Africa. According to Ibn Ḥabīb, *bādharūj* is *al-ḥabaq al-ʿarīḍ*. He describes it as having broad aromatic leaves. He says that the leaves are edible, but in excess they cause loss of vision.[3] For Álvarez de Morales and Girón Irueste, the plant in question is *Ocimum basilicum*, L.

Properties and Uses: *Melissa officinalis*, known commonly as lemon balm, is an aromatic, cooling, mildly sedative herb that lowers fever, improves digestion, relaxes spasms and peripheral blood vessels, and inhibits thyroid activity. It has antiviral, antibacterial, and insect-repellant properties. Internally, it is used for attention deficit disorder, heart attack, insomnia, stress, nervous disorders, Grave's disease, herpes, insomnia, irritable bowel syndrome, indigestion caused by nervous tension and excitability, hyperthyroidism, depression, anxiety, palpitations, fever, febrile conditions, painful menstruation, and tension headaches. Externally, it is used for herpes, sores, gout, insect bites, and as an insect repellant. This herb is gentle enough for babies and children.

Scientific Studies: *Antidementic Activity* According to research conducted by Northumbria University in the UK, extensive research suggests that lemon balm possesses cognition-enhancing properties. *Melissa officinalis* extracts have been shown to bind directly to both nicotinic and muscarinic receptors in human brain tissue. Robust anxiolytic effects have also been demonstrated following acute administration to healthy humans, with mnemonic enhancement restricted to an extract with high cholinergic binding properties. Chronic regimes of aromatherapy and essential oil respectively have also been shown to reduce agitation and attenuate cognitive declines in sufferers of dementia. Given the side effect profile of prescribed cholinesterase inhibitors, and a current lack of a well tolerated nicotinic receptor agonist, these herbal treatments may well provide effective and well-tolerated treatments for dementia, either alone, in combination, or as an adjunct to conventional treatments.[4]

According to a systematic review of controlled studies of herbal medicines used in the treatment of behavioral and psychological symptoms of dementia in the elderly, two herbs and herbal formulations were found to be useful, one of which was *M. officinalis*. *Melissa officinalis* was found useful in treating cognitive impairment, as well as agitation, as it possesses sedative effects. Although the herb demonstrated good therapeutic effectiveness, the researchers insisted that it needs to be compared with the effectiveness of traditional drugs. Further large multicenter studies were recommended in order to test the cost-effectiveness of the herbs for adult dementia and its impact in the control of cognitive deterioration.[5]

Antiherpetic Activity In an in-vitro study conducted by the University of Heidelberg in Germany, the aqueous extracts from *Melissa officinalis* showed high antiviral activity against HSV-1, HSV-2 and an acyclovir-resistant strain. At maximum non-cytotoxic concentrations of the extracts, plaque formation was significantly reduced by > 90 percent for HSV-1 and HSV-2 and > 85 percent for the acyclovir-resistant strain. In time-response studies over a period of 2 hours, a clearly time-dependent activity was demonstrated. These results indicate that the extract affects HSV before absorption, but has no effect on the intracellular virus replication. Therefore, the extract exerts its antiviral effect on free HSV and offers a chance to use it for topical therapeutic application against recurrent herpes infections.[6]

In a study conducted by Cukurova University in Turkey, the volatile oil components of *M. officinalis* showed antiviral activity against herpes simplex 2. *M. officinalis* volatile oil was found to be non-toxic to HEp-2 cells up to a concentration of 100 microg/ml. It was, however, found to be slightly toxic at a concentration over of 100 microg/ml. The antiviral activity of non-toxic concentrations against HSV-2 was tested. The replication of HSV-2 was inhibited, indicating that the *M. officinalis* extract contains an anti–HSV-2 substance.[7]

In a study conducted by the Centre of Biogenic Stimulants in Bulgaria, *M. officinalis* extracts were shown to possess virucidal and antiviral effects against herpes simplex type 1. Virucidal effect was registered within 3 and 6 hours of treatment with one extract. The remaining extracts inactivated the virus at the 12th and 24th hour. The presence of caffeic, rosmarinic and ferulic acids was demonstrated by thin-layer chromatography. Their role in the antiviral activity of *M. officinalis* is discussed.[8]

In a double-blind, placebo-controlled, randomized, human trial conducted by the Cooperative

Clinical Drug Research and Development GmbH, Berlin, Germany, standardized balm mint cream (active ingredient: 1 percent Lo-701—dried extract from *Melissa officinalis* L. leaves [70:1]) was shown to be effective in the treatment of herpes simplex labialis. Sixty-six patients with a history of recurrent herpes labialis were treated topically; 34 of them with verum and 32 with placebo. The cream had to be smeared on the affected area four times daily over five days. The cream was found to be effective in shortening the healing period, preventing the spread of infection, and relieving the symptoms of herpes, including itching, tingling, burning, stabbing pains, swelling, tautness and erythema. The different mechanisms of action of the balm mint extract rules out the development of resistance of the herpes virus. Some indication was also found that lemon balm treatment might prolong the intervals between outbreaks.[9] Further studies have also shown the effectiveness of *Melissa officinalis* in the treatment of herpes simplex.[10]

Hepaprotective Activity In an animal trial conducted by Istanbul University, the administration of *Melissa officinalis* L. extract reduced total cholesterol, total lipid, ALT, AST and ALP levels in serum, and LPO levels in liver tissue, while increasing glutathione levels in the tissue. As a result, it was suggested that *M. officinalis* extract exerted a hypolipidemic effect and showed a protective effect on the liver of hyperlipidemic rats.[11]

In a study conducted by the Universidade Federal do Rio de Janeiro, the chemical composition and the biological activities of *Melissa officinalis* essential oil was examined. An in-vitro cytotoxicity assay using the essential oil indicated that it was very effective against a series of human cancer cell lines, and a mouse cancer cell line. The oil also possessed antioxidative activity. These results point to the potential use of *M. officinalis* essential oil as an antitumor agent.[12]

Antimicrobial Activity Research has shown that *M. officinalis* possesses antimicrobial activity.[13]

Antispasmodic Activity According to research, *M. officinalis* possesses antispasmodic activity.[14]

Anti–Helicobacter pylori *Activity* According to an ongoing screening program conducted by the University of Illinois at Chicago, the methanol extract of *M. officinalis* leaves had an MIC of 100 microg/mL against 15 HP strains.[15]

Anti-HIV Activity The greatest potential of *Melissa officinalis* seems to be in the area of AIDS research. In an in-vitro study conducted by the Osaka Prefectural Institute of Public Health, *Melissa officinalis* showed potent anti–HIV-1 activity.[16]

Lemon Balm Notes

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3. Ibn Ḥabīb A. *Mujtaṣar fî al-ṭibb/Compendio de medicina*. Ed. C Álvarez de Morales and F Girón Irueste. Madrid: Consejo Superior de Investigaciones Científicas, 1992: 99/71.
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11. Bolkent, Yanardag, KarAbūlut-Bulan, Yesilyaprak. Protective role of *Melissa officinalis* L. extract on liver of hyperlipidemic rats: a morphological and biochemical study. *J* 2005; 99(3): 391–398.
12. de, Alviano, Blank, Alves, Alviano, Gattass. *Melissa officinalis* L. essential oil: antitumoral and antioxidant activities. *J* 2004; 56(5): 677–681.
13. Larrando JV, Agut M, Calvo-Torras MA. Anti-microbial activity of essences from Labiates. *Microbios* 1995; 82(332): 171–172.
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15. Mahady, Pendland, Stoia, Hamill, Fabricant, Dietz, Chadwick. In vitro susceptibility of *Helicobacter pylori* to botanical extracts used traditionally for the treatment of gastrointestinal disorders. *Phytother* 2005; 19(11): 988–991.
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Lemongrass/*Idhkhīr*

Family: Poaceae
Botanical Name: *Cymbopogon citratus*
Common Names: *English* Lemongrass; *French* Andropogon, herbe citronée, verveine des Indes;

Spanish Limoncillo, pasto limón, hierba limon; *German* Zitronengras; *Urdu/Unānī* Izkhar, Kah Maki, Kah Makah, Alf Gorkhar; *Modern Standard Arabic* idhkhīr

Safety Rating: Generally Safe Lemongrass is generally considered to be safe for most people when consumed in food quantities. It also appears to be safe when used medicinally for short periods. Inhaling lemongrass, however, can cause lung problems. Lemongrass should not be consumed by women who are pregnant or lactating.

Prophetic Prescription: During the time of the Prophet, the Muslims used to cover corpses with lemongrass.[1] It is also reported that the Messenger of Allāh declared that the vegetation in Mecca could not be uprooted, with the exception of *idhkhīr* since people used it for their graves and their houses.[2]

Issues in Identification: According to Said and Barr, *idhkhīr* is Arabic for lemon or ginger grass (*Cymbopogon schoenanthus*).[3] Bīrūnī refers to it as *tibn makkah*, *ṭīb-al-ʿarab*, *khilāl maʾmūnī*, *al-najm*, and *raʿy al-ʿīr*, which Said identifies as Geranium grass, camel's hay, lemongrass, scenanth, aromatic, and rush.[4] Johnstone has also identified *idhkhīr* as *Cymbopogon schoenanthus*.[5] Akīlī and Elgood, however, say that it refers to *Cymbopogon nardus* or bog-rush.[6] According to Mandaville, *Cymbopogon commutatus* is occasional to locally frequent in eastern Saudi Arabia, where it is known as *sakhbar*, *idhkhīr*, *khaṣāb*, and *ḥamrāʾ*.[7]

Properties and Uses: *Cymbopogon citratus*, or lemongrass, is a bitter, aromatic, cooling herb that increases perspiration, and relieves spasms. It is also effective against fungal and bacterial infections. Internally, it is used for digestive problems in children, and minor feverish illnesses. Externally, it is used for ringworm, athlete's foot, and scabies.

Scientific Studies: *Insecticidal Activity* According to a study conducted by the University of Lome in Togo, *Cymbopogon schoenanthus* possesses insecticidal activity.[8] Its crude essential oil was toxic to *Callosobruchus maculatus* as adults, and inhibited the development of newly laid eggs and neonate larvae.

Lemongrass Notes

1. Bukhārī M. *Ṣaḥīḥ al-Bukhārī*. al-Riyyāḍ: Bayt al-Afkār, 1998; Muslim. *Jāmiʿ al-ṣaḥīḥ*. al-Riyyāḍ: Bayt al-Afkār, 1998.

2. Ibn Qayyim al-Jawziyyah M. *al-Ṭibb al-nabawī*. Bayrūt: Dār al-Kitāb, 1985.

3. Bīrūnī, AR al-. *al-Bīrūnī's Book on Pharmacy and Materia Medica*. Ed. and trans. HM Said. Karachi: Hamdard National Foundation, 1973; Ibn Ḥabīb A. *al-Ṭibb al-nabawī*. Ed. MA Barr. Dimashq: Dār al-Qalam, 1993.

4. Bīrūnī, AR al-. *al-Bīrūnī's Book on Pharmacy and Materia Medica*. Ed. and trans. HM Said. Karachi: Hamdard National Foundation, 1973.

5. Johnstone P, trans. *Medicine of the Prophet*. Ibn Qayyim al-Jawziyyah. Cambridge: The Islamic Texts Society, 1998.

6. Ibn al-Qayyim al-Jawziyyah. *Natural Healing with the Medicine of the Prophet*. Pearl Publishing. Trans. M al-Akīlī. Philadelphia, 1993; Elgood C. Trans. *Ṭibb al-nabī or Medicine of the Prophet*. Sūyūṭī J, M Chaghhaynī. *Osiris* 1962: 14.

7. Mandaville JP. *Flora of Eastern Saudi Arabia*. London: Kegan Paul, 1990.

8. Ketoh, Koumaglo, Glitho, Huignard. Comparative effects of *Cymbopogon schoenanthus* essential oil and piperitone on *Callosobruchus maculatus* development. *Fitoterapia*. 2006; 77(7–8): 506–510.

Lentils / *ʿAdas*

Family: Fabaceae

Botanical Name: *Lens culinaris*

Common Names: *English* Lentil; *French* Lentille; *Spanish* Lenteja; *German* Echte Linse; *Urdu/Unānī* Adas, Masoor; *Modern Standard Arabic* ʿadas, ʿalas, balas

Safety Rating: Generally Safe

Prophetic Prescription: Lentils or *ʿadas* are mentioned in the Qur'ān in the context of the Exodus (2:61). The Messenger of Allāh is reported to have said, "Eating lentils fills the heart with love, washes the eyes of tears, and takes away pride."[1] It is equally claimed that he said, "Lentils soften the heart" and that "The sanctity of lentils has been described by seventy prophets."[2] In a very weak tradition (*munkar*), the Prophet supposedly complained to Allāh that the hearts of his followers were hard. Upon doing so, it was revealed to him, "Order them to eat lentils for they make the heart tender, the eyes weep, remove arrogance, and are the food of the pious (*abrār*)."[3]

According to Imām Jaʿfar al-Ṣādiq, "Lentil porridge (*sawīq al-ʿadas*) removes thirst, strengthens the stomach, contains the cure for seventy diseases, extinguishes yellow [bile], and cools down the inside." It is also related that the Imām never separated himself from lentil porridge (*sawīq al-ʿadas*) when he traveled. He also used to tell his servants who suffered hemorrhages (*hayajān al-dam*), "Drink lentil porridge (*sawīq al-ʿadas*) for it calms hemorrhages (*hayajān al-dam*), and extinguishes [high] temperature (*ḥarārah*)."[4]

Issues in Identification: It is the consensus that *ʿadas* is Arabic for lentils. According to Bīrūnī, *ʿadas* is also known as *bulsun*. Said identifies *ʿadas* as *Lens culinaris*.[5]

Properties and Uses: Lentils are very high in protein, folic acid, and potassium. They are fairly good sources of thiamin and niacin, and provide calcium, phosphorus, and iron. They are also rich in vitamin A, B, and C. Lentils are used in Chinese medicine to regulate the digestive system, to stop diarrhea, and to supplement the spleen and the stomach. In Indian medicine, they are used to remedy constipation and other intestinal afflictions. They are also used to treat ulcers and slow-healing sores.

Scientific Studies: *Anticancer Activity* In a case-control study of 186 men and women conducted by Howard University College of Medicine, the consumption of legumes such as lentils was negatively associated with risk of colorectal cancer. Legumes like lentils are a good source of dietary fiber and of phytochemical compounds that may play a role in reducing adenoma formation or growth, hence decreasing the risk of colorectal cancer. Since African Americans are at greater risk for developing colorectal cancer, researchers encouraged nurses working with African Americans to encourage consumption of legumes in order to decrease this risk.[6]

In a human study conducted by the Harvard School of Public Health, 90,630 women who were between 26 and 46 in 1991 were followed for 8 years in an attempt to determine whether dietary flavanols reduce breast cancer. Researchers found a significant inverse association with the intake of beans or lentils, both major food sources of flavanols. The inverse association did not apply to tea, onions, apples, string beans, broccoli, green pepper or blueberries, which are also major food sources of flavanols. While researchers did not find an overall association between the intake of flavanols and risk of breast cancer, there was an inverse association with the intake of beans or lentils that merits further evaluation.[7] Beans and lentils appear to reduce the risk of breast cancer, for a reason beyond their flavanol content.

Lentils Notes

1. Bayhaqī A. *al-Sunan al-kubrā*. Bayrūt: Dār Ṣadīr, 1968; Iṣbahānī AN al-. *Mawsū'at al-ṭibb al-nabawī*. Ed. MKD al-Turkī. Bayrūt: Dār Ibn Ḥazm, 2006; Ibn Qayyim al-Jawziyyah M. *al-Ṭibb al-nabawī*. Bayrūt: Dār al-Kitāb, 1985; Ibn al-Jawziyyah considers this tradition to be apocryphal.

2. Ibn Qayyim al-Jawziyyah M. *al-Ṭibb al-nabawī*. Bayrūt: Dār al-Kitāb, 1985.

3. Iṣbahānī AN al-. *Mawsū'at al-ṭibb al-nabawī*. Ed. MKD al-Turkī. Bayrūt: Dār Ibn Ḥazm, 2006.

4. 'Amilī H. *Wasā'il al-shī'ah*. Bayrūt: al-Mu'assasah, 1993.

5. Bīrūnī, AR al-. *al-Bīrūnī's Book on Pharmacy and Materia Medica*. Ed. and trans. HM Said. Karachi: Hamdard National Foundation, 1973.

6. Agurs-Collins, Smoot, Afful, Makambi, Adams-Campbell. Legume intake and reduced colorectal adenoma risk in African Americans. *J* 2006; 17(2): 6–12.

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Lettuce/*Al-khas*

Family: Asteraceae

Botanical Name: *Lactuca sativa*

Common Names: *English* Lettuce; *French* Laitue, Salade; *Spanish* Lechuga; *German* Kopf, Salat, Welk; *Urdu/Unānī* Salaad, Kaahu, Khas; *Modern Standard Arabic* Khas

Safety Rating: Generally Safe to Deadly All varieties of lettuce contain a narcotic fluid known as *lactucarium*. Consumption of lettuce may cause drowsiness even in small quantities, while excess may cause restlessness. Due to its narcotic property, which resembles that of mild doses of opium, lettuce tea made with *L. serriola*, *L. virosa*, *L. canadensis* or other varieties can be abused as a drug. While *L. sativa* and *L. serriola* are mildly toxic, *L. virosa*, the variety with the highest level of lactucarium, is considered poisonous. Besides lactucarium, it contains hyoscyamine, a powerful depressant of the parasympathetic nervous system. Overdose of any variety of lettuce can induce terror, dangerous hallucinations, and death through cardiac paralysis. For this reason, lettuce should never be consumed as a juice. As Duke notes, bolted lettuce eaten as a vegetable has been reported to cause coma. While safe in food quantities, lettuce should only be used medicinally under expert supervision.

Prophetic Prescription: Imām Ja'far al-Ṣādiq said, "Use lettuce for it cuts [or purifies] the blood."[1]

Issues in Identification: It is agreed upon that *khas* is the Arabic word for lettuce, both wild and cultivated. By "lettuce," the Prophet and the Imāms may have been referring to primitive wild edible bitter lettuces such as *L. serriola*, known as prickly lettuce, wild lettuce, and compass plant. Although *L. sativa* or common garden lettuce was known in China in the 5th century, and may have existed earlier, it is not certain whether this variety had reached Arabia by the 6th century. If it was not known to the Prophet, it may have been known to the middle to late Imāms. The Prophet and the Imāms were certainly unfamiliar with Romaine lettuce, which was common in Italy dur-

ing the Middle Ages. The light-green, dark-green, and red-spotted varieties of Romaine lettuce were described in 1623. Romaine lettuce is said to have been brought from Italy to France by Rabelais in 1537. The firm-headed forms of lettuce we are familiar with in the Western world had become well-developed in Europe by the 16th century. Oak-leaved, curly-leaved, and the various colorful types we are familiar with today in were first described in Europe the 16th and 17th centuries.

Properties and Uses: *Lactuca serriola* or wild lettuce is a very bitter, unpleasant smelling, sedative, nutritive, narcotic, hypnotic, antipyretic, expectorant herb, which stimulates the appetite, lowers high blood pressure, relieves pain, and soothes the digestive tract. Internally, the leaves are used by lactating mothers as a galactalogue. Along with vinegar, the leaves are considered a tonic for the intestines and digestive system. The seeds are consumed to treat insomnia, anxiety, neuroses, and hyperactivity in children, as well as dry coughs, bronchitis, whooping cough, rheumatic pain, and biliousness. They are often combined with *Humulus lupulus*, *Passiflora incarnata*, *Valeriana officinalis*, *Scutellaria lateriflora*, and *Cypripedium parviflorum*, to treat insomnia. Wild lettuce seeds are also used as a sexual suppressant. Externally, lettuce seeds are made into a paste, and applied to the forehead to treat headaches. Lettuce seed oil is massaged into the head to induce sleep. It is also used as a nasal drop. The dry latex is considered sedative, antispasmodic, and anodyne, and is preferred over opium.

Scientific Studies: *Antidiabetic Activity* According to a lab study conducted by Taipei Medical University in Taiwan, *Lactuca indica* contains compounds that show significant antidiabetic activity.[2]

Analgesic and Anti-inflammatory Activity According to an animal trial conducted by the Institut Pasteur in Iran, *Lactuca sativa* seed extract exhibited a time- and dose-dependent analgesic effect and dose-dependent anti-inflammatory activity.[3]

Free Radical Scavenging Activity According to a lab study conducted by the United States Department of Agriculture, lettuce leaf extracts contain compounds with high specific peroxyl radical scavenging activities.[4]

According to a study conducted by the Institute of BioAgricultural Sciences in Taiwan, an extract of *Lactuca indica* possesses significant free radical scavenging activity, effectively protecting DNA from leukemia cells.[5]

According to a study conducted by Woosuk University in Korea, the methanolic extract of the aerial parts of *Lactuca scariola* show strong radical scavenging activity.[6]

Lettuce Notes

1. Majlisī M. *Biḥār al-anwār*. Ṭihrān: Javad al-Alavi, 1956; ʻAmilī H. *Wasā'il al-shī'ah*. Bayrūt: al-Mu'assasah, 1993.
2. Hou CC, Lin SJ, Cheng JT, Hsu FL. Antidiabetic dimeric guianolides and a lignan glycoside from *Lactuca indica*. *J* 2003 May; 66(5): 625–9.
3. Sayyah, Hadidi, Kamalinejad. Analgesic and anti-inflammatory activity of *Lactuca sativa* seed extract in rats. *J* 2004 Jun; 92(2–3): 325–9.
4. Caldwell CR. Alkylperoxyl radical scavenging activity of red leaf lettuce (*Lactuca sativa* L.) phenolics. *J* 2003 Jul 30; 51(16): 4589–95.
5. Wang SY, Chang HN, Lin KT, Lo, Yang, Shyur. Antioxidant properties and phytochemical characteristics of extracts from *Lactuca indica*. *J* 2003 Feb 26; 51(5): 1506–12
6. Kim. Antioxidative components from the aerial parts of *Lactuca scariola* L. *Arch* 2001 Oct; 24(5): 427–30.

Lovage/*Kāshin*

Family: Apiaceae

Botanical Name: *Levisticum officinale*

Common Names: *English* Lovage, mountain hemlock; *French* Livèche, Ache de montagne; *Spanish* Apio de monte, Perejil silvestre, Levístico; *German* Echter Liebstöckel, Maggikraut; *Urdu/Unānī* Kashin, Anjadan-e-Rumi, Marva Khusha, Ashtar gax; *Modern Standard Arabic* Kāshin, Anjadān rūmī

Safety Rating: Generally Safe Lovage is generally considered to be safe for most people. Long-term use, however, can increase sensitivity to the sun, increasing risk of rashes, sunburns, and skin cancer. Lovage should not be consumed by those who are pregnant or lactating, suffer from high blood pressure, and who have kidney and heart problems.

Prophetic Prescription: Imām Ja'far al-Ṣādiq said "Drink lovage (*kāshin*), for it is good for pain of the waist."[1]

Issues in Identification: According to Bīrūnī, the plant is known as *nānakhwah*. It is also written as *nānkhwah*. Said identifies it as *Ammi copticum* L. or *Carum copticum* (*Trachyspermum ammi*), known as bishop's-weed or ajwain, and says that it is also known as *al-kammūn al-ḥabashī* and *kammūn al-malik* in Arabic. This seems problematic as *T. ammi* L. is known as *khillah* and the varieties of the plant do not have names similar to *kāshin*. Said cannot possibly be correct, as the only plant named *kāshin* in Arabic is *Levisticum*

officinale. Although she has misspelled it as *kāshim* in her English transliteration, Ispahany is correct in identifying *kāshin* as lovage. Álvarez de Morales and Girón Irueste also identify *kāshin* as *Levisticum officinale* Koch.[2] The Indo-Pakistani *ajwain* is often confused for and mislabeled as lovage. Ajwain, however, is not *Levisticum officinale*, but rather *Trachyspermum ammi*.

Properties and Uses: *Levisticum officinale* is a bittersweet, sedative, pungently aromatic herb that benefits digestion, relaxes spasms, increases perspiration, and acts as a diuretic and expectorant. Internally, lovage is used for digestive difficulties, heartburn, flatulence, colic, poor appetite, cystitis, gastric catarrh, painful menstruation, and slow labor. It is used as a sedative, to dissolve phlegm, to treat fluid retention, relieve muscle spasms, and treat urinary tract infections. Lovage is also employed to reduce water retention, to treat rheumatism, malaria, and jaundice, and as a prophylaxis for kidney stones. Externally, it is used as an antiseptic for sore throat, aphthous ulcers, and skin problems.

Scientific Studies: *Diuretic Activity* Lovage is a traditional botanical medicine for the treatment of the urinary tract.[3] Lovage root is used as a diuretic.

Antispasmodic and Sedative Activity Some evidence suggests that lovage can ease muscle spasms and cause sedation in animals.[4]

Lovage Notes

1. Nisābūrī A. *Islamic Medical Wisdom: The Ṭibb al-a'immah*. Trans. B. Ispahany. Ed. AJ Newman. London: Muḥammadī Trust, 1991: 71.
2. Ibn Ḥabīb A. *Mujtaṣar fī al-ṭibb/Compendio de medicina*. Ed. C Álvarez de Morales and F Girón Irueste. Madrid: Consejo Superior de Investigaciones Científicas, 1992.
3. Yarnell. Botanical medicines for the urinary tract. *World* 2002; 20(5): 285–293.
4. Fetrow CW, Avila JR. *The Complete Guide to Herbal Medicines*. Springhouse: Springhouse Corporation, 2000.

Marjoram/*Marzanjūsh, Mardaqūsh*

Family: Lamiaceae

Botanical Name: *Origanum majorana*

Common Names: *English* Sweet marjoram, knotted marjoram; *French* Marjolaine; *Spanish* Mejorana; *German* Echter Majoran; *Urdu/Unānī* Mirzanjosh, Mirzangosh, Dona Marwa; *Modern Standard Arabic* marzanjūsh, mardaqūsh, bardaqūsh, ḥabaq al-fīl, 'abqar

Safety Rating: Generally Safe to Deadly Used in medicinal amounts for short periods of time, marjoram is generally considered to be safe for most adults when used appropriately. At least, this is the opinion of the *American Herbal Products Association Botanical Safety Handbook*. The German Commission E, however, considers both *O. vulgare* and *O. majorana* (oregano) as "unapproved." Since it contains arbutin and hydroxyquinone, the latter of which is carcinogenic, marjoram should not be used for extended periods of time. Marjoram and oregano should not be given to children in medicinal amounts nor should marjoram be consumed be women who are pregnant or lactating. Marjoram salves should not be applied to infants and young children. Patients allergic to plants in the Lamiaceae family, such as hyssop, lavender, mint, and sage, should not consume marjoram or oregano.

Prophetic Prescription: The Messenger of Allāh said, "Smell marjoram."[1] He also said, "May you have sweet marjoram (*marzanjūsh*), for it is most excellent for a loss of sense of smell."[2] He also said, "Take marjoram (*marzanjūsh*) for it is good for the cold."[3] Imām 'Alī al-Riḍā also recommended the taking the "comprehensive medication" for semiparalysis and facial paralysis in marjoram water as well as inhaling it.[4]

Issues in Identification: According to Bīrūnī, the plant is known as *marzanjūsh* and *maranzūsh*, as well as *fākhūr*, *marw*, and *rayḥān al-shūk*. In Dīnawarī, it is also called *al-marzajūsh*, and *mardaqūsh*. He says that although it is not grown in Arabia, it is mentioned often in Arab poetry. It is also known as *simsim*, *al-'iṭr*, *'anqaz*, and *samsaq*.[5] He describes the plant as very green with reddish extremities, and says that women use it for their hair.[6] He says that *marū* is oregano of Egypt, namely, *Origanum majorana*. Said, Elgood, Álvarez de Morales and Girón Irueste identify the plant as *Origanum majorana* or sweet marjoram.[7] Turkī simply says that it is marjoram.[8] Bīrūnī says that marjoram is also known as *'unquz* and *samsaq*. Farooqi identifies it as *Majorana hortensis* (marjoram) and *Origanum vulgare* (oregano). Akīlī claims that it refers to *Majorana hortensis*.[9] Johnstone says it is *Origanum majorana*.[10]

In Arabic, *Origanum* is *mardaqūsh*, *Origanum syriacum* is *mardaqūsh sūrī*, *za'tar*, and *zūbā'*, *Origanum majorana* is *rayḥān Dāwūd*, and *mardaqūsh*, *Origanum vulgare* is *fuwadnaj jabalī*, and *sa'tar*, and finally, *Majorana hortensis* is both *marzanjūsh*, and *mardaqdūsh*. Since *Majorana hortensis* is the only variety which bears both of the names used by the Prophet and the Imāms, it is, in all likelihood, the herb they referred to. This

would make sense since *Origanum majorana* originates from North Africa while *Majorana hortensis* is native to Syria.

Properties and Uses: There are various types of marjoram, including hop marjoram or Cretan dittany (marjoram) (*Origanum dictamnus*), sweet or knotted marjoram (*Origanum majorana*), Italian oregano or hardy marjoram (*Origanum majoricum*), and pot or Greek oregano (*Origanum onites*), all of which are mainly aromatic herbs. For medicinal properties, we must look to *Origanum vulgare* and *Origanum majorana*.

Origanum vulgare, known commonly as oregano or wild marjoram, is a pungently aromatic, antiseptic, warming herb that relaxes spasms, increases perspiration, benefits the digestion, stimulates the uterus, and acts as a mild expectorant. It is considered carminative, antiflatulent, anodyne, anticatarrhal, lithontriptic, diuretic, emmenagogue, and anthelmintic.

Internally, wild marjoram is used for colds, influenza, minor feverish illnesses, indigestion, flatulence, stomach upsets, and painful menstruation. It is also used for its antioxidative activity and to induce sweating. Externally, it is used for bronchitis, asthma, arthritis, inflammation, and muscular pain. The herb is never administered to pregnant women.

Origanum majorana, known commonly as sweet marjoram, is demulcent, resolvent, deobstruent, detersive, absorbent, antispasmodic, carminative, stimulant, emmenagogue, diaphoretic, tonic, stomachic, and anti-inflammatory. It is used internally for dyspepsia, indigestion, nausea, colic, and flatulence, as well as loss of appetite, rheumatism, neuralgia, sneezing, cough, respiratory ailments, and menstrual cramps. It is traditionally used to treat bruises, certain cancers, conjunctivitis, cough, headache, insomnia, lack of menstruation, menstrual cramps, motion sickness, muscle and joint pain, sharp intestinal pains in infants, to prevent intestinal gas, as well as to stimulate digestion. Externally, the oil is used to treat rheumatism, digestive complaints, hemicranias, and earache.

Scientific Studies: *Anti-Hyperglycemic Activity* In an animal trial conducted by the Laboratory of Endocrinian Physiology in Morocco, the aqueous extract of *Origanum vulgare* exhibited anti-hyperglycemic activity without affecting basal plasma insulin concentrations.[11]

Antibacterial Activity In a study conducted by Proyecto the Instituto Nacional de Antropología e Historia in Mexico, *Origanum vulgare* exhibited a high and broad level of antibacterial activity against locally prevalent pathogenic bacteria.[12] According to a study conducted by the Aromatic and Medicinal Plant Group, Scottish Agricultural College, in the UK, the volatile oil of *O. vulgare* exhibits considerable inhibitory effects against 25 different genera of bacteria.[13]

Antioxidative Activity In a study conducted by the Northern Advancement Center for Science & Technology, in Japan, the radical scavenging activities of dried oregano leaves were found to be almost the same as that of quertecin and rosmarinic acid.[14] Other studies have confirmed the antioxidative activity of oregano.[15]

Anticancer and Antithrombotic Activity According to a study conducted by the University of Central Florida, the aristolochic acid I and II from *Origanum vulgare* produced a high inhibition of thrombin activity. They were also confirmed to possess activity against cancer.[16]

Anti–Helicobacter pylori *Activity* As part of an ongoing screening program conducted by the University of Illinois at Chicago, methanol extract of *Origanum majorana* herb had a MIC of 50 microg/mL against 15 HP strains.[17]

Antispasmodic Activity Research has confirmed the antispasmodic activity of marjoram, which accounts for its use in treating nausea, sharp intestinal pains, and menstrual cramps.[18]

Marjoram Notes

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Marshmallow/ *al-Khayrī, al-Khaṭmī*

Family: Malvaceae

Botanical Name: *Althaea officinalis*

Common Names: *English* Marshmallow, marsh mallow; *French* Guimauve, Bon Visclo; *Spanish* Malvavisco; *German* Echten Eibischs; *Urdu/Unānī* Khatmi; *Modern Standard Arabic* khaṭmī, khaṭmiyyah

Safety Rating: Generally Safe to Potentially Dangerous Although Western literature does not describe *Althaea officinalis* as dangerous, Unānī herbalists consider the herb to be an abortifacient. As such, it should be used with caution, and avoided by women who are pregnant.

Prophetic Prescription: Imām Ja'far al-Ṣādiq said, "Washing one's head with marshmallow (*khaṭmī*) protects from headache, is a healing against poverty, and it cleans the head from disputes (*al-ḥazāzah*)." The Imām also said, "Washing one's head with marshmallow (*khaṭmī*) every Friday protects against psoriasis (*baraṣ*) and madness."[1]

Issues in Identification: It is the consensus that *khaṭmī* is the Arabic word for marshmallow or *Althaea officinalis*.

Properties and Uses: *Althaea officinalis* is a sweet, mucilaginous herb with highly emollient, skin-protectant, expectorant, antiseptic, alterative, vulnerary, antiasthmatic, antitussive, diuretic, gastric-protective, cicatrizant, slightly laxative, odontalgic, and antibacterial activity. Due to its demulcent properties, it is effective in treating inflammations of the mucous membranes.

Internally, an infusion of the whole plant is considered an abortifacient and emmenagogue. The roots, which counter excess stomach acid, are used to treat inflammation and ulceration of the digestive tract, as well as peptic ulcers, gastritis, hiatus hernia, bronchitis, excess mucus, asthma, cough, whooping cough, sore throat, constipation, and cystitis. The leaves are used to treat urinary tract infections, excess mucus, bronchitis, irritating coughs, cystitis, and frequent urination. Externally, *Althaea officinalis* roots are used to treat bruises, sprains, boils, abscesses, eye and skin inflammations, insect bites, splinters, minor injuries, aching muscles, gingivitis, mastitis, and gangrene. The roots are often combined with *Symphytum officinale* for digestive problems, with *Glycyrrhiza glabra*, *Marrubium vulgare* or *Lobelia inflata* for bronchial complaints, with *Piper nigrum* for asthma, and with *Ulmus rubra* for external use. Used as a toothbrush or chewed, the dried root has a mechanical effect on the gums and helps to ease pain. When dried and powdered, the root is used to bind the active ingredients when making medicinal pills.

Scientific Studies: *Antittussive Activity* According to an animal trial conducted by Medizinische Fakultät Comenius Universität in Bratislava, Slovakia, the polysaccharide isolated from the roots of marshmallow shows significant cough-inhibiting activity.[2]

In an in vivo study conducted by the Comenius University in Slovakia, the antittussive activity of various plant polysaccharides from *Althaea officinalis* was confirmed. The polysaccharides exhibited statistically significant cough-suppressing activity, which was noticeably higher than that of the non-narcotic drug used in clinical practice to treat coughing. On the basis of these results, the researchers concluded that the *Althaea officinalis* polysaccharides they tested be included among prospective antitussive agents.[3]

Antibacterial Activity According to a study conducted by the Applied Research Centre for Health in Edinburgh in the United Kingdom, *Althaea officinalis* exhibits unexpected antimicrobial activity.[4]

According to a study conducted by the University of Catania in Italy, *A. officinalis* exhibits inhibiting activity against periodontopathic bacteria. The researchers concluded that extracts of *A. officinalis* be used as a topical medication in periodontal prophylactics.[5]

Antioxidative Activity According to a study con-

ducted by the Slovak Academy of Sciences in Bratislava, Slovakia, the polysaccharides from the aerial parts of *Althaea officinalis* var. *robusta* and *P. lanceolata* exhibited strong antioxidative activity.[6]

Inhibitory Activity on Melanocyte Activation According to a study conducted by Kao Biological Science Laboratories in Japan, an extract of *Althaea officinalis* may be a useful ingredient for a skin whitening agent.[7]

Marshmallow Notes

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Melons/*Baṭṭīkh, Biṭṭīkh*

Family: Cucurbitaceae

Botanical Name: *Citrullus lanatus*

Common Names: *English* Watermelon; *French* Pastèque, Melon d'eau; *Spanish* Sandía; *German* Wasserzitrulle, Wassermelone; *Urdu/Unānī* Tarbooz, Bittikh-e Hindi, Hindwana; *Modern Standard Arabic* biṭṭīkh

Botanical Name: *Cucumis melo*

Common Names: *English* Melon, Muskmelon; *French* Melon; *Spanish* Melon; *German* Melone; *Urdu/Unānī* Bittikh, Kharpaza, Kharbooza; *Modern Standard Arabic* biṭṭīkh, kharbaẓ

Safety Rating: Generally Safe to Deadly Watermelon is generally considered to be safe for most people. The sprouting seed produces a toxic substance and should never be consumed. As Duke cites, eating unripe watermelons, however, can cause serious illness, even death.

Prophetic Prescription: It is reported that the Messenger of Allāh used to like watermelons.[1] It is also related that he use to eat yellow melons (*kharbaẓ*) and say "They are the best."[2] The Prophet used to eat watermelon with fresh dates saying "The heat in one repels the cold of the other."[3] In his *Ṭibb al-nabī*, Maḥmūd ibn Muḥammad al-Chaghhaynī reports that the Prophet used to eat watermelon with fresh fruit and cheese, and that he would often eat a whole melon with nothing else.[4] According to Imām Mūsā al-Kāẓim, the Messenger of Allāh used to eat watermelon with sugar.[5]

The Messenger of Allāh said, "Watermelon is a food as well as a drink. It washes the bladder and is an aphrodisiac."[6] He also said, "To eat watermelon before a meal cleanses the stomach and roots out disease."[7] The Prophet also said, "Whenever you eat fruit, eat watermelon, because it is the fruit of Paradise, and contains a thousand blessings and a thousand mercies. The eating of it cures every disease."[8] He also said, "None of your women who are pregnant and eat watermelon will fail to produce offspring who are good in countenance and good in character."[9]

The Prophet is reported to have said, "The spring-time of my 'Ummah' is grapes and melons."[10] It is also related that he said, "Verily, in the watermelon there are ten virtues."[11] The Prophet is also reported to have said, "Whenever you eat fruit, eat watermelon because it is the fruit of Paradise and contains a thousand blessings and a thousand mercies. The eating of it cures every disease."[12] It is also recorded that he said,

> Tear the watermelon with your teeth and do not cut it to pieces for it is a blessed fruit, good and purifying to the mouth, bringing a blessing to the heart, and whitening the teeth. It is acceptable to God. Its smell is of amber. Its juice comes from the Fountain of Kawthar. Its good taste comes from Heaven. The very eating of it is a religious act.[13]

According to Ibn 'Abbās, the Messenger of Allāh said, "Take watermelon for they have ten virtues: a food and a drink, a stimulant to growth of the teeth, a perfume, a cleansing of the bladder, an increase in the spinal fluid, an increase in venery, a destruction of cold, and a cleansing for the skin."[14]

It is also related that the Prophet said, "Eat the fruit of the melon, and tear it with your teeth. Its juice is a mercy, its sweetness is from faith, and faith is from Paradise. He who takes a mouthful of watermelon, Allāh will inscribe forty thousand merits, and will wipe away seventy thousand evil deeds."[15]

It is reported that the Prophet was among a group of companions and said, "Allāh gives mercy to the man who feeds us with these watermelons." Then ʿAlī stood up and brought more melons. These too were eaten by the Prophet, and his companions. Then he said, "Allāh will show mercy on the man who has fed us with these, to us who eat them now, and to anyone who will eat them among the Muslims from now until the Day of Resurrection."[16] It is related that some melons from Ṭāʿif were brought to the Messenger of Allāh as a gift. He smelled them, and kissed them, saying, "Eat these with your teeth for they are among the lawful things of the earth. Their juice is of the mercy of Allāh, and their sweetness is of Paradise."[17]

Imām Jaʿfar al-Ṣādiq said, "Eat watermelon (*baṭṭīkh*) for it has ten benefits: it is the flesh of the Earth, it is devoid of disease, it is both a food and a drink, it is a fruit, it has a pleasant fragrance, it freshens (*ashnān*) the breath, it is the main part of a meal, it hydrates, it cleans the bladder, and is diuretic."[18] Finally, he warned that "Consuming watermelon (*baṭṭīkh*) on an empty stomach engenders semi-paralysis (*fālij*)."[19]

Issues in Identification: There is a great deal of confusion between melons and watermelons in both Hebrew and Arabic. Some translators believe that the biblical melon was *Cucumis melo*, while others believe that it was *Citrullus lanatus* (*C. vulgaris*). In any event, both fruits are perfectly suited to the climate of the Holy Land.

According to Hans Wehr, *baṭṭīkh* is melon or watermelon. Turkī renders it simply as melon.[20] In Arabic, however, melon or *Cucumis melo* is typically known as *shammām* or *qāwwūn*. When describing *baṭṭīkh,* Ṣuyutī spoke of the green and yellow varieties, which are immediately reminiscent of musk melons (a cultivar group of *C. melo*).[21] These are known as *baṭṭīkh aṣfar* and *baṭṭīkh akhḍar*.

Unless qualified by *aṣfar* or *akhḍar*, *baṭṭīkh* generally refers to watermelon, known in Saudi Arabian Arabic as *baṭṭīkh* and *joh*. This is the species which has been identified by Johnstone since Ibn al-Jawziyyah says that the kind of watermelon meant by the Prophet is the green variety.[22] In Ibn Ṭūlūn, we see that Abū Masḥar described *baṭṭīkh* as being sweet and having stripes.[23] Since only watermelons have stripes, it might be best to discard musk melons when interpreting the words of the Prophet. As Chaudhary explains, variants of *Cucumis melo*, known as *kharsh* and *shammām* in Saudi Arabic, are wild and cultivated melons, found in the Western region of Saudi Arabia. Watermelon is known as *ḥabḥab* in the Saudi dialect.[24]

Although native to tropical Africa and India, watermelon is cultivated throughout Arabia, where they have long been naturalized. According to Biggs, McVicar, and Flowerdew, watermelons were first mentioned by Western botanists and travelers in the sixteenth century, but were little improved until they reached North America, where examples weighing over 100 pounds, and many varieties of colored flesh, rind, and seed, were developed.[25]

As for the melon, Weaver explains that Medieval and Renaissance sources often equated melons with cucumbers and watermelons and, even later, with New World squash (191). Pliny described the melon as a type of cucumber the size of a quince.[26] As Biggs, McVicar, and Flowerdew explains,

> The tasty, sweet, aromatic melons we know were apparently unknown to the ancients. They certainly grew similar fruits, but these seem to have been more reminiscent of the cucumber. Pliny, in the first century A.D., refers to the fruits dropping off the stalk when ripe, which is typical of melons, but they were still not generally considered very palatable. To quote Galen, the philosopher-physician, writing in the second century A.D., "the autumn (ripe) fruits do not excite vomiting as do the unripe." By the third century A.D., they had become sweeter and aromatic enough to be eaten with spices, and by the sixth and seventh centuries they were distinguished from cucumbers. The first reference to really delicious, aromatic melons comes in the fifteenth and sixteenth centuries, probably as the result of hybridization between many different strains.[27]

In Europe, melons were not cultivated until the Middle Ages, with the possible exception of al-Andalus.[28] These melons, of course, were viewed not as fruit, but as green vegetables, and were usually eaten as a kind of salad, with pepper and vinegar, and well seasoned with garum and silphium. In Toussaint-Samat's estimation, gardeners had to taste 50 melons before they found a good, sweet one, to perpetuate. It was only through careful selection over the centuries that the melon increased in size and sweetness and was no longer considered a green vegetable.[29]

If by *baṭṭīkh* the Prophet meant one of the ancient cultivated varieties of watermelon, that variety of *Citrullus vulgaris* probably no longer exists. If he was referring to wild or semiwild African watermelons, the fruit in question would be *Citrullus lanatus*. If by *baṭṭīkh*, Muḥammad meant melon or *Cucumis melo*, he must have been referring to the sweeter, more aromatic varieties which had been recently developed, and which could be

eaten plain or made into juice. Such melons must not have been very sweet if they were commonly sweetened with sugar or other fresh fruit. They must also have been rather small if an entire melon was considered a single serving. As Toussaint-Samat observes, "melons and watermelons not much larger than apples still grow in the wild state around watering-holes in sub–Saharan savannas and in desert oases in the southern part of the African continent."[30]

Properties and Uses: *Citrullus lanatus* is a fruit which is primarily consumed as a cooling food in the summertime. It is also eaten as a coolant in hot weather and if one is suffering from a heat stroke.[31] Watermelon seeds are cardiac, demulcent, diuretic, enuresis, pectoral, purgative, tonic, diuretic, vermifuge, tenifuge, and anthelmintic. The fatty oil in the seed, along with aqueous and alcoholic extracts, paralyzes tapeworms and roundworms. When fully ripe or even when almost putrid, the fruit is used as a febrifuge. The fruit contains lycopine, found also in the skin of tomatoes, which is cardioprotective. Watermelon rind is also prescribed in cases of alcohol poisoning and diabetes. The root is purgative and in large doses is said to be emetic.

Watermelon is considered to be antemetic, anthelmintic, antiallergic, anticancer, antioxidant, antiprostatitic, antiseptic, aphrodisiac, cerebrotonic, chemopreventive, curare, demulcent, diuretic, febrifuge, hypocholesterolemic, hypotensive, laxative, litholytic, nephrotonic, purgative, snake repellant, and vermifuge.

Watermelon is used to treat bite, bronchosis, cancer, catarrh, cystitis, depression, dermatosis, diarrhea, dyspepsia, dysuria, fever, gas, gonorrhea, headache, hepatosis, high blood pressure, infection, inflammation, kidney stone, maculitis, malaria, nephrosis, pulmonosis, sinusitis, sore, sore throat, stomatosis, stone, strangury, typhus, urethrosis, vaginosis, sexually transmitted disease, roundworm, tapeworm, and various other worms.

Scientific Studies: *Larvacidal Activity* According to a study conducted by Annamalai University in India, *Citrullus vulgaris* extract possesses larvicidal activity.[32]

Anti–Sickle Cell Activity According to a study conducted by Agricultural Research Service, watermelon rinds contain citrulline, an amino acid which plays an important role in the human body's urea cycle, removing nitrogen from the blood and converting it into urine. Citrulline helps to create arginine, an amino acid of which some people are deficient. Researchers are presently examining whether the cirtulline-arginine relationship can be exploited to create treatments for vascular tone problems associated with sickle-cell anemia. The discovery may lead to production of rind-based extract or dietary supplement products that address arginine or sickle cell–related deficiencies.[33]

Melons Notes

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Millet/*Kasab*

Family: Poaceae

Botanical Name: *Pennisetum glaucum*

Common Names: *English* Pearl millet; *French* Millet perle; *Spanish* Mijo perla; *German* Perlhirse; *Urdu/Unānī* Bajra; *Modern Standard Arabic* Kasab

Safety Rating: Generally Safe Millet is generally considered safe for most people. However, since millet is a mild thyroid peroxidase inhibitor, its consumption should be limited by those who suffer from thyroid disease.

Prophetic Prescription: The Messenger of Allāh said, "Whoever has faith equal to a grain of millet will be taken out of the Fire."[1] Imām Ja'far al-Ṣādiq explained that "There are three which are not eaten but which fatten, and there are three which are eaten but do not fatten. The three which are eaten but do not fatten are the palm tree (*tala'*), pearl millet (*kasab*) [*Pennisetum glaucum*], and walnuts (*jawz*). The three which are not eaten but which fatten are lime (*nūrah*), the good one (*ṭayyib*), and flax seed (*labs al-kattān*)."[2]

Issues in Identification: It is the consensus that *kasab* is Arabic for pearl millet. During the time of the Prophet, millet was generally imported from southern Arabia.[3] Besides its use in bread, as well as boiled and steamed food, pearl millet is an important ingredient of couscous.

Properties and Uses: Millet is a tasty, mildly sweet, cereal with a nut-like flavor. Its seeds are demulcent and diuretic and are used in the treatment of kidney and urinary complaints while the inflorescence is astringent and hemostatic. Millet contains nearly 15 percent protein, high amounts of fiver, B-complex vitamins, including niacin, thiamin, riboflavin, the essential amino acid methionine, lecithin, and some vitamin E. It is also particularly high in iron, magnesium, phosphorus, and potassium.

Millet is also rich in phytochemicals, including phytic acid, which is believed to lower cholesterol, and phytate, which may reduce the risk of cancer. Due to its high magnesium content, millet may reduce the severity of asthma, the frequency of migraine headaches, as well as lowering blood pressure, reducing the risk of heart attack, and lowering cholesterol. The phosphorus in millet is essential to the development and repair of body tissue.

Millet, like other whole grains, can help substantially lower the risk of type 2 diabetes. The insoluble fiber in millet can also help prevent gallstones, protect against breast cancer, cardiovascular conditions, and childhood asthma. The consumption of cereals like millet may also have health-promoting activities equal to or even higher than that of vegetables and fruits. Since none of the millets are closely related to wheat, they may be consumed by people with celiac disease or other forms of wheat allergies or intolerance.

The immature plant, especially when wilted, is poisonous as it contains hydrogen cyanide and the alkaloid hordenine. These substances, however, are destroyed upon drying or when the plant is made into silage. Although hydrogen cyanide can stimulate the immune system, improve digestion, and perhaps treat cancer, in excess it can cause respiratory failure and even death.

Millet Notes

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Miswak/*Miswāk*

Family: Salvadoraceae

Botanical Name: *Salvadora persica*

Common Names: *English* Toothbrush tree; *French* Arbre à brosse à dents; *Spanish* Salvadora

pérsica, Mostaza arbel; *German* Zahnbürstenbaum, Salzbusch, Senfbaum, Arakbaum; *Urdu/Unānī* Darakht-e-Miswak, Pilu, Iraak, Jaal; *Modern Standard Arabic* shajarat al-miswāk

Safety Rating: Generally Safe The use of *Salvadora persica* to brush one's teeth is generally considered safe for most people. Extended use, however, can lead to discoloration of the teeth. Furthermore, the rough fibers of the miswak tend to scratch the tooth enamel, and cause the gums to bleed, thus allowing bacteria to enter. These undesirable effects can be eliminated by using a toothpaste made of *Salvadora persica* rather than using a branch from the plant.

Prophetic Prescription: The Islamic religion places a great deal of stress on cleanliness. The importance of hygiene in the Muslim faith is summarized in a famous tradition in which the Prophet Muḥammad said, "Purification is half of faith."[1] Considering the Islamic dichotomy between physical and spiritual purity, it comes as no surprise that the Prophet Muḥammad would exhort his followers to observe proper oral hygiene as an act of devotion, "Use *miswāk* for it cleans the mouth and pleases the Lord."[2] He also said, "Using *miswāk* has tens of benefits."[3]

According to one tradition, Gabriel told the Prophet to use *miswāk* so often that the Prophet feared for his gums.[4] The Prophet regarded the use of *miswāk* prior to Friday prayer as important as bathing and applying perfume.[5] He also said, "Prayer with *miswāk* is seventy times better than prayer without it."[6] The Prophet Muḥammad even came close to making brushing and flossing a part of the obligatory religious ablutions: "If I did not think that it would be too burdensome to my *Ummah* [Nation]," stated Prophet Muḥammad, "I would have ordered them to brush their teeth with a *miswāk* before each prayer."[7]

Imām ʻAlī ibn Abī Ṭālib stated that "Recitation of Qur'ān, *al-siwāk* [twig of *miswāk*], and storax are purifiers of phlegm."[8] Imām Jaʻfar al-Ṣādiq said, "Use *al-siwāk*. It is a purifier, and a good Sunnah."[9] The Imām also said, "There are twelve benefits in *al-siwāk*: it forms part of the Sunnah, it is a purifier of the mouth, it improves vision, it pleases the Merciful, it whitens the teeth, it removes holes, it strengthens the gums, it opens the appetite, it removes phlegm, it increases memory, it doubles blessings, and it pleases the angels."[10]

In a similar tradition, the Sixth Imām said, "There are ten benefits in *al-siwāk*: it is a purifier of the mouth, it pleases the Lord, it pleases the angels, it forms part of the Sunnah, it strengthens the gums, it improves vision, it removes phlegm, and it removes holes."[11] The Imām also said, "*Al-siwāk* and the recitation of the Qur'ān cut phlegm," and that "*Al-siwāk* takes away tears, and improves vision."[12] "Take *siwāk*," said the Imām, in another tradition, "for it removes heart murmurs."[13] He also said, "Use *al-siwāk* for it improves vision."[14] It was also reported by Muslim, the servant of Jaʻfar al-Ṣādiq, that "He stopped using *al-siwāk* two years before his death, and only because his teeth had become weak."[15] According to Imām ʻAlī al-Riḍā, "*miswāk* … freshens the breath, strengthens and thickens the gums, and fights calculus."[16]

The *miswāk* or toothbrush referred to in these prophetic traditions is often fashioned from the *Salvadora* genus made up of four or five species of salt-tolerant evergreen trees found in the more arid areas of Africa, the Middle East, India, and China. The *miswāk* is made from sections of the root. The bark is removed and the inner wood is frayed. It is then chewed and applied to the teeth and gums, serving simultaneously as both a toothbrush and floss.

Several species of *Salvadora* are used for making the *miswāk*, all sharing similar chemical properties, including *Salvadora persica*, which is commonly called Arak tree, toothbrush tree, salt bush, or mustard tree. According to Imām ʻAlī al-Riḍā, "The best *miswāk* is made from *arak* branch."[17] According to the Prophet, "There are three types of *miswāk*. If *arak* is not available, then use *ʻanam* or *baṭm* (terebinth)."[18] He also said that the black fruit (*kabāth*) of *Salvadora* was the best.[19]

Issues in Identification: The Arabic *arak* refers to *Salvadora persica* and not to aloeswood as Aḥmad Thomson, Elgood, and Akīlī claim.[20] Farooqi says that *arak* is *khamṭ*, *shajar al-miswāk*, and *khardal*. He is correct that *arak* is *shajar al-miswāk*. He is partially correct that it is also *khamṭ*. Quoting one of his sources, Bīrūnī says that *khamṭ* is a tree like the jujube with fruits which resemble mulberries. Another one of his sources says that *khamṭ* is the flower of *Salvadora persica*. As Said clarifies, *khamṭ* refers to anything bitter or sour, especially the fruit of the *arak* tree. Said identifies *arak* as both *kibāth* and *kabāth*, which is *Salvadora persica*. Besides *kibāth*, *kabāth*, Bīrūnī says that *arak* is also known as *mard*, and *siwāk*. The *barīrah* is the large-sized fruit, the *mard* is the green, fresh and tender, and the *kibāth* is the sweet, reddish, fully developed fruit.[21]

According to Mandaville, *Salvadora persica* is a rare plant in eastern Saudi Arabia, found only in coastal and inland sands. The plant is known as *rak* or *arak* in Saudi Arabic. Its twigs are known as *miswāk*, and its fruit as *barīr*.[22] The *mawāsik* used in Saudi Arabia is unquestionably *Salvadora*

persica. As Ghazanfar mentions, *Salvadora persica* is found throughout Arabia, on coastal sands, and inland wadis.[23]

Properties and Uses: *Salvadora persica*, known as toothbrush tree, salt bush, and mustard tree, produces leaves which are astringent, stimulant, diuretic, expectorant, and which cleanse toxins. The leaves and root bark destroy parasites, while the wood promotes healing. The fruits improve appetite, and bowel function, and regulate the menstrual cycle. Both the fruit and seeds stimulate circulation.

Scientific Studies: *Multiple Activities Salvadora persica*, like other species of *Salvadora*, possesses numerous medicinal properties, several directly beneficial for oral hygiene. The leaves of *S. persica* are detoxicant. They are beneficial for cleansing toxins that exude from infections. The wood of *S. persica* promotes healing. Both its bark and roots are antimicrobial.[24] Abrasions and cuts resulting from brushing and flossing, as well as canker sores, cavities, abscesses, inflammation and infections, all benefit from the external use of its leaves. Research confirms that *S. persica* possesses significant anti-inflammatory activity.[25] An astringent herb, it precipitates proteins from the surface of cells, contracts tissues, forms a protective coating and reduces bleeding and discharges. It is also an expectorant, encouraging the expulsion of phlegm from the respiratory tract. *Salvadora persica* extract possesses significant protective action against ulcers.[26] Its roots and leaves are anti-parasitic. The regular use of *S. persica* may help prevent, reduce, and cure cases of intestinal parasitic infestation which are of particular concern in warmer climates.

Antimicrobial Activity Research has shown that *miswāk* extract is even more effective in removing plaque than chlorhexidine gluconate, which is one of the best-proven anti-plaque agents.[27] Studies indicate that *S. persica* extract is somewhat comparable to other oral disinfectants and anti-plaque agents like triclosan and chlorhexidine gluconate if used at a very high concentration.[28] *Salvadora persica* is indeed a "natural toothbrush."[29] In fact, the WHO recommended the use of *miswāk* in 1986 and in 2000 an international consensus report on oral hygiene concluded that further research was needed to document the effect of *miswāk*.

In a study conducted by the Shahid Beheshti University in Iran, the essential oil of *Dicyclophora persica* showed strong inhibition activity against *Bacillus subtilis*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Enterococcus faecalis*, *Escherichia coli*, *Klebsiella pneumoniae*, and *Aspergillus niger*. It did not, however, inhibit *Pseudomonas aeruginosa*.[30] In a study conducted by the Jordan University of Science and Technology, the aqueous extracts of *miswāk* and derum enhanced the growth of fibroblasts and inhibited the growth of cariogenic bacteria, with the derum extract showing greater activity than *miswāk*.[31] In a controlled human trial of forty male subjects conducted by the College of Dentistry at New York University, use of a 50 percent *miswāk* extract solution significantly reduced the level of *Streptococcus mutans* in comparison to regular toothbrushing.[32] It may be concluded *miswāk* has an immediate antimicrobial effect.

Antifertility Activity In an animal study conducted by the Jordan University of Science and Technology, Irbid, Jordan, exposure of male mice to miswak extract resulted in a 72 percent reduction in pregnancies in untreated females impregnated by test males. The relative weights of the testes and preputial glands were significantly increased and that of the seminal vesicles was significantly decreased in test males. These results indicate that *miswāk* extract has adverse effects on the male and female reproductive system and fertility.[33]

Antiulcer Activity In an animal study conducted by the University of Messina in Italy, a decoction of *Salvadora persica* provided significant protective action against ethanol and stress-induced ulcers.[34] *Salvadora persica* appeared to normally reestablish the elements of gastric mucosa.

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Mustard/*Khardal*

Family: Brassicaceae

Botanical Name: *Brassica alba* (aka *Sinapis alba*)
Common Names: *English* White mustard, salad mustard, cultivated mustard; *French* Moutarde blanche; *Spanish* Mostaza blanca; *German* Echter Senf, Weißer Senf; *Urdu/Unānī* Safaid Rai, Aspandan; *Modern Standard Arabic* khardal abyaḍ, khardal

Botanical Name: *Brassica juncea*
Common Names: *English* Brown mustard, Indian mustard, Chinese mustard; *French* Moutarde brune; *Spanish* Mostaza de la india; *German* Indischer Senf; *Urdu* Rai, Khardal, Aahar, Jambo; *Unānī Medical Term* Rai, Lotni; *Modern Standard Arabic* khardal

Botanical Name: *Brassica nigra*
Common Names: *English* Black mustard; *French* Moutarde noire; *Spanish* Mostaza negra, Ajenabe; *German* Schwarzer Senf; *Urdu/Unānī* Rai, Benasari Rai, Khardal; *Modern Standard Arabic* khardal aswad

Safety Rating: Generally Safe Mustard is generally considered to be safe for most people when consumed as a condiment. Large doses, however, can irritate the intestinal lining while long-term use can lead to kidney and prostate damage. Externally, mustard should not be applied to the skin for too long or too often as it can cause blistering. All mustards contain substances that are extremely irritant to skin and mucous membranes.

As such, it should only be administered by a qualified practitioner. Undiluted mustard oil must never be allowed to touch the skin, mucous membranes or eyes. Internally or externally, large doses of mustard can cause severe inflammation and burns.

Prophetic Prescription: Mustard is mentioned in the Qur'ān in the context of a parable (21:47, 31:16). The Messenger of Allāh said, "Whoever has faith the size of a mustard (*khardal*) seed will not go to Hell, and anyone who has pride as much as [a] mustard seed will not be allowed to enter Paradise."[1] He also said that Allāh would ask him to remove from Hell any person who has faith as small as a mustard seed.[2] The Prophet Muḥammad once asked, "What are the two basic cures?" He explained that "They are aloeswood and mustard seed (*khardal*)."[3] For pain in the ear, Imām Ja'far al-Ṣādiq prescribed the following:

> Take a handful of unhusked sesame (*simsim ghayr muqashshar*) and a handful of mustard (*khardal*). Grind each of them separately, then mix them together and extract the oil (*duhn*). Place the oil in a bottle and put an iron seal on it. Whenever you require, put two drops of it in the ear and bind it with a piece of cotton for three days. It will be cured, Allāh, the Exalted, willing.[4]

Issues in Identification: Black, brown, and white mustard are believed to originate from the Middle East. According to Said, *khardal* is mustard. *Isfand* is *khardal abyaḍ* or white mustard seed. For Álvarez Morales and Girón Irueste, *khardal* refers to *Sinapis alba*.[5] Farooqi says that *khardal* refers to *Brassica nigra* or black mustard. Black mustard is known in Arabic as *khardal aswad* and *libsān*. In Bīrūnī, wild mustard (*Sinapis arvensis*) is called *al-harsha'*. Al-Rāzī mentions two types of mustard, the white (*Sinapis alba*) and the red (*al-ṣināb*, black mustard, *S. nigra*). As Said explains, Bīrūnī was also referred to a type of mustard which was yellowish-brown. American mustard is made with *Sinapis alba*. English mustard is made with a combination of *Sinapis alba* and *Brassica nigra*. French mustard is made with *Brassica nigra* or *Brassica juncea*.

According to Mandaville, *Brassica juncea* is found occasionally in eastern Arabia as a garden weed, in waste areas or on roadsides, and rarely in the desert or disturbed ground. *Sinapis arvensis* is also infrequent in eastern Arabia, where it is found as a weed of gardens or farms, and rarely in the desert around camp sites and roadsides.[6] According to Chaudhary, *Brassica juncea*, known as *khardal* in Saudi Arabic, exists in Arabia as a cultivated crop or an escapee. *Sinapis alba* or *Brassica alba* has only been collected once as a weed in Saudi Arabia.[7] Many herbalists treat black, brown, and white mustard (*Brassica nigra*, *Brassica juncea*, and *Sinapis alba*) synonymously.

According to Duke, the mustard mentioned in the Bible is believed to have belonged to the black variety. Black mustard as also the variety used medicinally by the Greeks and the Romans. Early herbalists preferred black mustard over the milder white-seeded species. The Native Americans also used black mustard medicinally. Based on historical medicinal use, it seems sound to conclude that the mustard referred to by the Prophet and the Imāms for medicinal purposes was the black-seeded variety.

Properties and Uses: *Brassica alba* or *Sinapis alba*, known commonly as white mustard, is a pungent, stimulant, warming herb that improves digestion and circulation, relieves pain, and is expectorant, diuretic, and antibiotic. White mustard acts directly on the gastric mucous membrane, stimulating secretion. It is also occasionally used as a laxative.

Brassica juncea, known as brown mustard, Indian mustard, and Chinese mustard, is a warming, stimulant herb, with antibiotic effects. It is considered digestive, laxative, decongestant, stimulant, rubefacient, vesicant, stimulant, and resolvent. In large quantities, it may act as an emetic.

Brassica nigra or black mustard is a pungent, warming herb that stimulates the circulatory and digestive systems, and irritates the skin and mucous membranes. *Brassica nigra*, which is also known as brown mustard, is stimulant, emetic, tonic, diuretic, laxative, rubefacient, irritant, epipastic, carminative, condiment, vesicant, dilates the vessels, causing redness, warmth, and irritates sensory nerves, giving burning pain. It is a potent emetic in large doses.

Black mustard is used to treat atonic dyspepsia with constipation, delirium tremens, atonic dropsy, hiccups, and narcotic poisoning. It is also used to treat fluid retention, intestinal gas, and to induce vomiting. Externally, it is used in poultices, mustard plasters, and baths for rheumatism, arthritis, muscular pain, chilblains, and respiratory tract infections. It is also used to treat gout, atrophy, neuralgia, colic, gastralgia, inflammation of throat or lungs, toothache, earache, headache, diarrhea, dysentery, amenorrhea, dysmenorrhea, and to stimulate the heart, vascular system, and respiratory system.

Scientific Studies: *Antidiabetic Activity* In a review conducted by the All India Institute of Medical Sciences in India, *Brassica juncea* was one of 45 Ayurvedic plants found to possess anti-diabetic activity in experimental and clinical trials.[8]

Chemopreventive Activity According to an animal trial conducted at Jawaharlal Nehru Univer-

sity in India, the consumption of mustard seed oil was shown to reduce the incidence of tumors.[9] According to an animal study conducted by South Dakota State University, dietary mustard oil (which contains omega 3-polyunsaturated fatty acid) is more effective in preventing colon cancer in rats than dietary fish oil.[10] Another study, conducted by the University of Vienna, found that mustard juice is highly protective against induced DNA damage in human derived cells and that induction of detoxifying enzymes may account for its chemoprotective properties.[11]

Cholesterol-Lowering and Anticancer Activity In an animal study conducted by the University of Kerala in India, the consumption of mustard seeds was shown to reduce cholesterol levels and mean number of neoplasms in the colon intestine.[12]

Mustard Notes

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Myrobalan/*Halīlaj, Balīlaj, Amlaj*

Family: Combretaceae
Botanical Name: *Terminalia chebula*

Common Names: *English* Black myrobalan, Chebulic myrobalan; *French* Myrobalan chébula, Chébule; *Spanish* Mirobálano; *German* Chebula-Myrobalane, Chebulische Myrobalane, Schwarze Myrobalane, Rispigermyrobalaneubaum; *Urdu/Unānī* Halailah, Harr, Halailaj, Ahlilaj; *Modern Standard Arabic* shajar sha'īr hindī, ihlīlaj kābūlī

Safety Rating: Generally Safe *Terminalia chebula* is generally considered to be safe for most people when used for short periods of time, not extending beyond three months. The herb, however, should not be consumed by women who are pregnant or lactating.

Prophetic Prescription: It is reported that the Messenger of Allāh said, "Myrobalan is from the trees of Paradise. It cures seventy diseases."[1] In some other traditions, the Prophet specifies the type of myrobalan, saying, "Eat black myrobalan. It is among the trees of Paradise, and it contains the cure for every disease"[2]; and "Use yellow myrobalan and drink it for it comes from the trees of Paradise. It is bitter in taste and cures every disease."[3]

Imām al-Ḥusayn said, "If people knew what was in yellow myrobalan (*al-halīlaj al-aṣfar*), they would buy it by its weight in gold." He said to one of his companions, "Take one grain of yellow myrobalan and seven grains of pepper. Grind and sieve them and use as kuḥl around the eyes."[4]

Imām Ja'far al-Ṣādiq related that "Mūsā [Moses], the son of 'Imrān, peace be upon them, complained to his Lord, the Most High, on account of moisture and humidity. Allāh ordered him to take black myrobalan (*al-halīlaj*), beleric myrobalan (*al-balīlaj*) and embelic myrobalan (*al-amlaj*), make them into a paste with honey, and then to take it." The Imām then said, "It is the medicine known among you as *al-ṭurayfil*."[5]

Imām Mūsā al-Kāẓim told a group of physicians, "Confine yourselves to the chief of these medicines: myrobalan (*al-ihlīlaj*), fennel (*al-rāziyānaj*), and sugar. [Take it] at the beginning of the summer for three months, three times a month, and at the beginning of the winter for three months, three days a month, three times. Let the place of the fennel be from near the gum mastic (*maṣṭakā*) and one will not fall ill except for the illness of death."[6] The Imāms used to prescribe beleric, black, embelic, and yellow myrobalan.

Issues in Identification: According to Said, *halīlaj*, also known as *ihlīlis*, is myrobalan (chebulic myrobalan, *Terminalia chebula)* and *balīlaj* is beleric myrobalan, *Terminalia belerica*. The seeds can be white, black, red, or yellow. The Kābūlī variety are said to be superior. *Terminalia* origi-

nates in tropical Asia. One species, *Terminalia catappa*, is cultivated in Arabia.

Properties and Uses: Myrobalan is the dried fruit of *Terminalia chebula* (myrobalan, black chebulic). It is considered alterative, antidiarrheal, absorbent, astringent, aperient, carminative, stomachic, and cathartic. The fruit regulates colon function, improves digestion, is expectorant, controls bleeding and discharges, and destroys intestinal parasites. It also has a tonic, rejuvenative effect, especially on the digestive, respiratory, and nervous systems. Trees of the *Terminalia* genus are a source of secondary metabolites, cyclic triterpenes and their derivatives, flavanoids, tannins, and other aromatics, some of which have antifungal, antibacterial, anticancer, and hepaprotective indications. Internally, myrobalan is used for constipation, digestive and nervous disorders, diarrhea, dysentery, intestinal worms, hemorrhoids, rectal prolapse, abnormal uterine bleeding and inflammation, vaginal discharge, involuntary ejaculation, coughs, and asthma. It is not given to pregnant women or patients with severe exhaustion or dehydration.

Scientific Studies: *Anti-inflammatory, Antioxidant, Antimicrobial, and Antiulcer Activity* High in tannin, myrobalan is used externally for ulcers, wounds, mouth inflammation, and gum disease. According to research, the ethanol extract of *Terminalia pallida* Brandis exhibits significant antiulcer activity by enhancing antioxidant potential of the gastric mucosa and reducing mucosal damage.[7] Research confirms the antifungal activity of *Terminalia* species.[8] Studies validate the healing properties of the plant, and corroborate the astringent effect of tannins by drawing tissues closer together.[9] Studies confirm that black myrobalan possesses significant antibacterial[10] and anti-inflammatory properties.[11] In fact, *Terminalia arjuna* and Triphal (mixture of *Emblica officinalis*, *T. chebula* and *T. belerica*) possess strong antimicrobial activity against multi-drug resistant *Salmonella*.[12]

Antidiabetic and Renoprotective Activity Studies clearly indicate significant antidiabetic and renoprotective effects with the chloroform extract of *Terminalia chebula*, lending support for its traditional usage.[13] In one study, extracts of *T. chebula* produced a significant antidiabetic activity on alloxan-induced diabetic rats.[14]

Anticancer Activity According to one study, *Terminalia chebula* extract shows potential as a therapeutic agent for cancer prevention as it blocks or suppresses the events associated with chemical carcinogenesis.[15] In a study of 18 healthy male smokers and an equal number of age-matched non-smokers, two weeks of *T. chebula* therapy lead to a significant regression of endothelial abnormality in chronic smokers.[16] *Terminalia chebula* has been found to have radioprotective properties in mice and human lymphocytes.[17] The antimutagenic activity of the aqueous extract of *T. chebula* results from its potent antioxidant properties which protect cellular organelles from radiation-induced damage.[18]

Antihyperglycemic Activity In an animal study conducted by Satsang Herbal Research and Analytical Laboratories in India, the oral administration of 95 percent ethanolic extract of *Terminalia belerica* was confirmed to possess blood glucose lowering effects.[19]

Myrobalan Notes

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Myrrh/*Murr*

Family: Burseraceae

Botanical Name: *Commiphora myrrha*

Common Names: *English* Myrrh; *French* Myrrhe; *Spanish* Mirra; *German* Myrre, Myrrhe; *Urdu* Mur, Mur Maki, Bol; *Unānī Medical Term* Murr; *Modern Standard Arabic* Murr, Murr baṭārikh

Safety Rating: Generally Safe Although it can cause diarrhea and irritate the kidneys, myrrh is generally considered to be safe for most people when used as directed. It should not, however, be used during pregnancy as it considered to have abortifacient effects. It can, however, be used when childbirth is imminent. Myrrh should not be used by women suffering from any kind of uterine bleeding. In large doses, myrrh acts as a purgative, causing vomiting, and may affect heart rate. Topical preparations containing myrrh are reported to cause contact dermatitis.[1] Interaction with antidiabetic therapy is possible as hypoglycemic properties have been documented.

Prophetic Prescription: The Messenger of Allāh stated, "Fumigate your houses with *al-shīḥ*, *murr*, and *sa'tar*."[2]

Issues in Identification: According to Bīrūnī, *murr* is "the gum-resin brought from Socotra."[3] According to Ghazanfar, *murr*, *mirr*, and *ṣubr* is *Commiphora myrrha*, which is found in sandy and rocky areas of southern Arabia, in both Saudi Arabia and Yemen. It is also found in Somalia, Ethiopia, and Kenya.[4] *Murr* is not *Commiphora africana*, which is known in Arabic as *adras*, nor is it *Commiphora habessinica*, which is known as *medigeh* and '*okor* in colloquial Arabic. As Duke confirms, the Arabic *murr* refers to *Commiphora myrrha*.

Properties and Uses: Myrrh, the oleo gum resin obtained from species of *Commiphora*, is well-known as a fragrance used in incense and perfumes. Myrrh is considered abortifacient, analgesic, anesthetic, anthelmintic, anticlastogeic, antiedemic, anti-inflammatory, antioxidant, antipyretic, atiradicular, antirheumatic, antiseptic, antispasmodic, antithrombotic, antitumor, antiulcer, and astringent. It is also viewed as bactericidal, carminative, collyrium, cytotoxic, decongestant, deobstruent, deodorant, dessicative, detersive, digestive, emmenagogue, and expectorant. It is equally considered a fasciolicide, fungicide, gastroprotective, haematogenic, hepatoprotective, hypocholesterolemic, hypoglycemic, hypotriclyceridemic, and immunostimulant. Finally, it is considered a lactagogue, laxative, larvicide, lipolytic, mitodepressant, mosquitocide, mucogenic, orexigenic, prostaglandigenic, resolvent, schistosomicide, stimulant, stomachic, thyrostimulant, tonic, and vulnerary.

Myrrh is used to treat abrasion, adnexitis, alopecia, amenorrhea, anemia, aphthae, arthrosis, arteriosclerosis, asthma, athlete's foot, bacteria, bedsores, bladder stone, boils, bronchosis, bruise, cancer, cancer of the abdomen and colon, candidiasis, canker sore, carbuncle, caries, catarrh, chilblain, chlorosis, circulosis, cold, congestion, consumption, cough, dandruff, decubitis, dermatosis, diabetes, diarrhea, dicrocoeliasis, dipheria, dropsy, dysentery, dyslactea, dysmenorrhea, dyspepsia, and dysuria. It is also used for earache, edema, enterosis, epilepsy, erysipelas, fascioliasis, fever, fracture, freckle, fungus, furunculosis, gangrene, gas, gastrosis, gingivosis, gleet, gonorrhea, HIV and AIDS, halitosis, hemorrhoids, hepatosis, hoarseness, hypothyroidism, impotence, indigestion and infection. It is equally used for infertility, inflammation, itch, laryngitis, leprosy, leucorrhea, menopause, menorrhagia, mononucleosis, mucososi, mycosis, odontosis, opththalmia, orchosis, osteoalgia, otosi, pain, parasites, pharyngosis, phthisis, pruritis, pulmonosis, rheumatism, rhinosis, salpingitis, schistosomiasis, sinusitis, snakebite, sore, sore throat, stich, stomatosis, and swelling. Finally, it is employed for thrombosis, tonsilosis, toothache, tuberculosis, tumor, ulcer, uterosis, uvulosis, sexually transmitted disease, water retention, weaning, worm, wounds, wrinkles, and yeast infections. Externally, it is used as a stimulant, disinfectant, and antiseptic to mucous membranes and ulcerated surfaces. It

is used to treat abrasions, bed sores, gingivitis, hemorrhoids, sore throat, inflamed gums, ptyalism, mouth sores, wounds, cystitis, indolent ulcers, as well as chronic uterine and vaginal leucorrhea.

Scientific Studies: *Anti-inflammatory Activity* Studies have demonstrated the anti-inflammatory properties of myrrh.[5]

Anticancer Activity Sesquiterpenes, a constituent of the resin, have been shown to be potent inhibitors of certain cancers.[6] *Commiphora molmol* also inhibits the growth of Ehrlich carcinoma cells in mice. The cytotoxic activities appear to be as effective as cyclophosphamide in solid tumor-bearing mice. Results of one study reveal that the Na, K and Ca levels in cancer cells were reduced by treatment of *Commiphora molmol,* leading to inhibition of cellular proliferation and tumor growth.[7]

Antioxidative Activity In animal studies, aqueous suspension of *Commiphora molmol* has been found to protect against gastric mucosal damage caused by NSAIDs and ethanol. *Commiphora molmol* is thought to have free radical–scavenging, thyroid-stimulating and prostaglandin-inducing properties. In a controlled animal study conducted by Alexandria University Research Development in Egypt, myrrh was found to be a useful herbal remedy for controlling oxidative damages and genotoxicity induced by lead acetate intoxication.[8]

Antimicrobial Activity In a study conducted by Alexandria University in Egypt, it was confirmed that myrrh has considerable antimicrobial activity and is medicinally useful in a variety of diseases.[9]

Antihelminthic Activity In a human trial conducted by Mansoura University in Egypt, 204 patients with schistosomiasis, a widespread helminthic disease, were given myrrh at a dose of 10mg/kg of body weight/day for three days, inducing a 91.7 percent cure rate. Re-treatment of cases who did not respond with a dose of 10 mg/kg of body weight/day for six days gave a cure rate of 76.5 percent, increasing the overall cure rate to 98.09 percent. The drug was well tolerated, and side effects were mild and transient. Twenty cases provided biopsy specimens six months after treatment and none of them showed living ova.[10] Treatment of schistosomiasis is based on chemotherapy with praziquantel, which is the drug of choice. However, since resistance to praziquantel has been demonstrated, alternative drugs like myrrh must now be considered.

Myrrh Notes

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Myrtle/*Ās*

Family: Myrtaceae

Botanical Name: *Myrtus communis*

Common Names: *English* Myrtle; *French* Myrte; *Spanish* Mirto, Arrayán; *German* Echte Myrte, Braut-Myrte, Gewöhnliche Myrte; *Urdu/Unānī* Aas, Muwrad; *Modern Standard Arabic* ās (plant), hambalas (fruit)

Safety Rating: Generally Safe to Deadly While myrtle might be safe for most people in small quantities, it can cause nausea, vomiting, diarrhea, low blood pressure, and blood circulation disorders, as well as other problems. Due to the dangers posed by this plant, it should not be consumed by women who are pregnant or lactating. The oil of myrtle is dangerous for both adults and children. It can cause asthma-like attacks and lung failure leading to death. Myrtle should only be used as directed under expert supervision.

Prophetic Prescription: According to the Prophet Muḥammad, "If anyone offers you myrtle as a present, do not refuse it. It is from the Garden."[1] According to Ibn ʻAbbās, myrtle was the first thing that was planted by Nūḥ (Noah) when he disembarked from the ark.[2] A man complained

to Imām Mūsā al-Kāẓim that he suffered from excessive dirt (*wasakh kathīr*) making his garment filthy. The Imām said, "Grind myrtle and extract its water. Whisk it vigorously with the best wine vinegar available until it becomes foamy. Then wash your head and beard with it as vigorously as possible, after that, oil it with fresh sesame oil. It will remove it [the dirt], Allāh, the Exalted, willing."[3] Imām ʻAlī al-Riḍā also recommended using the "comprehensive medicine" with a decoction of myrtle for an ailment of the belly.[4]

Issues in Identification: *Myrtus communis* is found in the mountains of Spain, Italy, southern France, North Africa, and the Middle East. According to Dīnawarī, *ās* grows a lot in the sahel, the plains, and the mountains of Arabia.[5] Elgood, Turkī, Álvarez de Morales and Girón Irueste identify *ās* as myrtle.[6] According to Said, *al-ās* and *al-ʻamār* refer to *Myrtus communis*. Bīrūnī also speaks of *mūrid asfaram* which Said equally identifies as *Myrtus communis*. Bīrūnī also speaks of *māsifram*, and *mūrd isfaram*. *Isfaram* is a generic name for any odiferous plant in Arabic. According to Aṣmaʻī, as is also known as *rand*, and it is known in Yemen as *al-hadas*.

As Ouassad notes, *Myrtus* is *al-āsiyyah*. According to Nehmé, *Myrtus* is *ās* and *rīḥān*, and *Myrtus communis* specifically is *ās shāʼiʻ*. Ghazanfar notes that *Myrtus communis* is known as *yās* in Oman and *hadās* in Yemen. *Myrtus communis* is found in Saudi Arabia and northern Oman. A southern European variety is also distributed and often cultivated in parts of Arabia. According to Ghazanfar, this foreign variety was probably introduced.[7]

Properties and Uses: *Myrtus communis*, commonly known as myrtle, is an aromatic, stimulant, astringent, styptic, antidiaphoretic, carminative, tonic herb that is antiseptic and an effective decongestant. Internally, it is used for urinary infections, vaginal discharge, bronchial congestion, sinusitis, diarrhea, dysentery, and dry coughs. It is also used to treat diabetes, and digestive disorders. Externally, it is used for acne, gum infection, bruises, wounds, hemorrhoids, and body odor. Myrtle oil is used externally to treat respiratory and bladder problems, as well as rheumatism. Myrtle oil is also used in soaps and skin-care products. Recent research has shown that myrtle contains a substance that has an antibiotic action.

Scientific Studies: *Antibacterial, Antitumor, and Anti-inflammatory Activity* According to research, myrtle leaf lipid extracts exhibits antibacterial, antitumor, and anti-inflammatory activity.[8]

Antihypoglycemic and Antihypotriglyceridemic Activity According to an animal trial, myrtle exhibits hypoglycemic as well as mild hypotriglyceridemic activity in diabetic rabbits, supporting its use in Turkish folk medicine for the treatment of type 2 diabetes.[9] Other animal trials have also confirmed myrtle's anti-hyperglycemic activity.[10]

Antioxidative Activity Studies also suggest that myrtle extracts have a potent antioxidant activity.[11]

Myrtle Notes

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Narcissus/*Narjis*

Family: Amaryllidaceae

Botanical Name: *Narcissus* spp.

Common Names: *English* Narcissus; *French* Narcisse; *Spanish* Narciso; *German* Narzisse, Osterglocke; *Urdu/Unānī* Narjis, Nargis; *Modern Standard Arabic* Narjis

Safety Rating: Dangerous to Deadly The poisonous nature of narcissus has been known since ancient times. Due to its narcotic effect, Socrates called it "the chaplet of the infernal gods." Homer asserted that it could cause torpor, insanity, and death. The very word narcissus derives from the Greek word *narke*, which means "stupor." Ibn al-Jawziyyah explained that eating the cooked flowers and stalks of narcissus or drinking its water stimulates vomiting.[1]

Farooqi is in error when he claims that "the bulbs have some toxicity and are a very mild poison."[2] All species of *Narcissus* contain lycorine, an alkaloid poison. Found mostly in the bulb, but also in the leaves, lycorine may be highly poisonous, if not lethal, when consumed in large doses. Nausea, acute abdominal pain, vomiting, diarrhea, trembling, and convulsions are symptoms of lycorine toxicity. Due to the dangers posed by this plant, its ingestion should be avoided. Contact with *Narcissus jonquilla* may cause severe skin irritation.

Prophetic Prescription: According to an uncorroborated tradition, the Messenger of Allāh is alleged to have said, "Smell a narcissus. For verily, in the heart of man there is the seed of insanity, leprosy, and vitiligo, which can only be prevented by smelling narcissus."[3] In a longer version, the Prophet says, "Smell a narcissus, even if only once a day or once a week or once a month or once a year or even once in a lifetime. For verily, in the heart of man there is the seed of insanity, leprosy, and leukoderma. And the scent of narcissus drives these away."[4] It is also related that the Prophet said, "Do not hesitate to smell narcissus, for it protects from the cold of winter, and so does black seed."[5]

Issues in Identification: It is the consensus that *narjis* is Arabic for *Narcissus*. Bīrūnī speaks of *narjis*, *abhar*, *sawsan*, and *qahd*, which Said identifies as *Narcissus tazetta* L. Aṣmaʿī also says that *narjis* is a synonym for *abhar*. For Johnstone, *narjis* refers to *Narcissus poeticus*, and *Narcissus pseudonarcissus*.[6] For Álvarez de Morales and Girón Irueste, *narjis* is *Narcissus poeticus*.[7] Dīnawarī does not identify *sawsan* as *narjis*, but does state that it does not grow in Arabia, that it has many varieties, and the prettiest is white.[8] As Nehmé notes, *Narcissus* is *narjis*; *Narcisuss tazzetta* is *narjis ṭāsī*, and *narjis ṭāqī*, and *maḍʿaf*.[9]

It is unlikely that the tradition refers to *Narcissus jonquilla*, known in English as narcissus, jonquil, and daffodil. It is found from Europe to the Mediterranean. It is equally unlikely that the tradition refers to *Narcissus poeticus* or poet's narcissus. Found from France to Greece, it was not readily available to the Arabs at the time of the Prophet. Furthermore, every part of the plant is poisonous, especially the bulbs, which are powerfully emetic and irritant. When present in any quantity in a close room, their mere smell is sufficient to produce headaches and vomiting in some persons. The bulb is powerfully emetic and irritant and is used as a homeopathic remedy.

Narcissus pseudonarcissus, known in English as wild daffodil, must also be discarded. Found in Western Europe and Britain. It is used as an emetic and to treat burns and other skin problems. All parts of the plant are poisonous. Although the toxins are found mainly in the bulb, even the flowers are mildly toxic. When applied to open wounds, an extract of the bulbs has produced staggering numbness of the whole nervous system, and paralysis of the heart. A small quantity of daffodil bulbs is sufficient to cause sudden death.

The flower referred to in the traditions above must be *Narcissus tazetta*, known as bunchflower daffodil, which ranges from Europe to East Asia.

Properties and Uses: Internally, *Narcissus tazetta* is a demulcent. The roots are emetic. It is also used to relieve headaches. Externally, it is employed as an antiphlogistic and analgesic poultice in the treatment of abscesses, boils, and other skin complaints, as well as mastitis. It is reputed to be effective against certain forms of cancer. This might be the result of benzaldehyde transforming into laetrile-like compounds or to lycorine turning into lycobetaine-like compounds in the body.

Scientific Studies: *Anticancer Activity* The anticancer activity of narcissus extracts have been known for many decades.[10] According to a study conducted by Xiangya Medical College in China, the extracts from *Narcissus tazetta* var. *chinensis* strongly decreased the survival rate of the following tumor cell lines: HL-60, K562, KT1/A3, and A3R.[11]

Antimalarial Activity According to a study conducted by Gazi University in Turkey, *Narcissus tazetta* alkaloids exhibit antimalarial activity.[12]

Anti-HIV Activity According to research conducted by the Katholieke Universiteit Leuven in Belgium, narcissus appears to contain a natural anti–HIV agent. The mannose-specific plant lectins from narcissus would primarily be targeted at the virus-cell fusion process.[13]

According to a study conducted by the Universitat de Barcelona, mannose-specific lectins isolated from bulbs of fifteen wild narcissus species growing in Spain almost all possess HIV-1 inhibitory activity in MT-4 cells, with some being com-

parable to dextran sulfate without significant cytotoxicity. On a molar basis almost all of the MSLs tested exhibited lower EC50 values than dextran sulfate while six MSLs had values lower than AZT. The most efficacious anti–HIV-1 activity was exhibited by the *Narcissus tortifolius* MSL, which was 10- (microg/mL) and 100- (molarity) fold more potent than dextran sulfate. Significantly, although this MSL was 15-fold less potent than AZT in terms of quantity, it was 68-fold more potent on a molar basis. The antiviral indices, a ratio of the concentrations that produce cytotoxicity and HIV-1 replication, were calculated and three of the MSLs, *Narcissus confusus*, *Narcissus leonensis* and *Narcissus tortifolius* reported 1.5-, 2- and 8.5-fold greater AI values than dextran sulfate or AZT. Comparison of MSL haemagglutination activities (HAA) to their anti–HIV-1 activities showed that there was no significant correlation. It was suggested that this may be due to dissociation between both activities as a consequence of multiple isolectin composition.[14]

Acetylcholinesterase Inhibitory Activity According to a study conducted by the Universitat de Barcelona, amaryllidaceous plants produce pharmacologically active alkaloids. The most interesting of them is galanthamine which shows potential in the treatment of Alzheimer's disease as a cholinesterase inhibitor. In this particular study, researchers tested 23 pure Amaryllidaceae alkaloids and 26 extracts from different species of the genus *Narcissus* for their acetylcholinesterase inhibitory activity. Only seven alkaloids, belonging to the galanthamine and lycorine skeleton types, exhibited such an effect, sanguinine being the most active, even more than galanthamine. All the extracts with the highest acetylcholinesterase inhibitory activity contained galanthamine except that of *Narcissus assoanus*, a lycorine type alkaloid-bearing species.[15]

Anti-Rabies Activity According to a study conducted by the Universita La Sapienza in Italy, rabies virus attachment to susceptible cells was prevented by *Narcissus pseudonarcissus* agglutinin.[16]

Antileukemic Activity According to an animal trial, a narcissus alkaloid, pretazettine hydrochloride, has been shown to be active against spontaneous AKR leukemia. The long-term treatment with pretazettine hydrochloride significantly prolonged the life span of the group.[17]

Anti-Alzheimer Activity According to a study conducted by the University of London in the UK, galanthamine isolated from several members of the Amaryllidaceae family (*Leucojum* spp., *Narcissus* spp., *Galanthus* spp.) has become an important therapeutic option used to slow down the process of neurological degeneration in Alzheimer's disease. This review traces aspects of the history of its development from little-known observational studies in the Caucasus Mountains (Southern Russia), to the use of this drug in Eastern European countries (esp. Bulgaria) in the treatment of poliomyelitis and ultimately to the recent introduction onto Western markets in the treatment of Alzheimer's disease.[18]

Galanthamine, an alkaloid present in the Amaryllidaceae, is currently undergoing clinical trials for the treatment of Alzheimer's. Common daffodils contain galanthamine and other alkaloids. Four commercial narcissus cultivars were evaluated as potential sources of galanthamine. Planting depths, planting densities, bulb size or flower bud removal did not affect galanthamine content.[19]

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Nuts (Almonds, Walnuts)/*Mukassarāt* (*Jawz*, *Lawz*)

Family: Rosaceae
Botanical Name: *Prunus dulcis*
Common Names: *English* Almond tree; almond; *French* Amandier; amande; *Spanish* Almendro; almendra; *German* Echte Mandel; *Urdu/Unānī* Badam, Badam Shireen, Lauz; *Modern Standard Arabic* lawz

Family: Juglandaceae
Botanical Name: *Juglans regia*
Common Names: *English* Walnut tree; walnut (nut); *French* Noyer; noix (nut); *Spanish* Nogal común; nuez (nut); *German* Echte Walnuss, Baumnuss, Walnussbaum; *Urdu/Unānī* Akhrot, Jawz, Gardgan; *Modern Standard Arabic* jawz, ʻayn al-jamal

Safety Rating: Generally Safe to Deadly
In the absence of allergies, nuts are considered safe when consumed in moderation. Allergic reactions to nuts, however, tend to be severe, easily leading to death. Since 1 percent of Americans suffer from tree nut and peanut allergies, caution is always indicated. Even when allergies are absent, certain nuts should only be consumed in small quantities. Due to their high selenium content, consumption of Brazil nuts should be limited to one to two servings a maximum of twice per week. Since they are high in oxalate, they should not be overconsumed by individuals suffering from oxalate-containing kidney stones. Cashew nuts also contain oxalate and should be consumed in moderation by sensitive people. Due to their high moisture content, chestnuts are prone to the development of mold and bacteria. As such, they should always be kept covered and refrigerated. Cashews and pistachios contain oleoresins which can cause allergic reactions. Care should be taken when consuming bitter almonds as they contain highly poisonous amounts of prussic acid, the same toxic substance found in cyanide or hydrocyanic acid.

Prophetic Prescription: The Messenger of Allāh is alleged to have said, "Cheese is a disease and walnuts (*jawzāt*) are a medicine. Taken together, they become a remedy."[1] The Imāms also prescribed almonds (*lawz*), blue almonds (*lawz azraq*) and pine nuts (*ṣanawbar*) for medicinal purposes.

According to Imām Jaʻfar al-Ṣādiq, "There is a remedy contained in both (fresh saltless) cheese and walnuts (*jawz*). However, when taken apart, they contain sickness."[2] The Imām also explained, "There are four things which improve vision. They are beneficial and contain no harm." He was asked what they were. He responded, "Thyme (*zaʻtar*) and salt when taken together, bishop's weed (*nānkhwāh*) and nuts (*jawz*) when taken together." He continued,

> Bishop's weed and nuts burn hemorrhoids, chase the wind, they improve the color, wrinkle the stomach, and warms the kidneys. Thyme and salt chase the wind from the heart (*fu'ād*), open that which is closed, burn phlegm, increase urine (*mā'*), increase flavor, softens the stomach, removes the bad wind (*riḥ al-khabīthah*), and give an erection.[3]

On another occasion, Imām Jaʻfar al-Ṣādiq explained that "There are three which are not eaten but which fatten, and there are three which are eaten but do not fatten. The three which are eaten but do not fatten are the palm tree (*talaʻ*), pearl millet (*kasab*) [*Pennisetum glaucum*], and walnuts (*jawz*). The three which are not eaten but which fatten are lime (*nūrah*), the good one (*ṭayyib*), and flax seed (*labs al-kattān*)."[4]

Issues in Identification: There is no question that *jawz* is walnut and *lawz* is almond. According to Ghazanfar, walnut is pronounced as *joz* in Saudi Arabia, where it is also known as *naksh*. It exists in Arabia as a cultivated tree in the south west mountains.[5] The widespread use of nuts among the Arabs was the result of their contact with the Persians and Spaniards during the early period of Islamic expansion.[6]

Properties and Uses: *Juglans regia* or English walnut is a bitter, astringent herb that is expectorant and laxative, soothes irritated tissues, and dissolves kidney stones. It controls many disease-causing organisms, and has anticancer properties. Internally, walnut leaves are used for constipation, chronic coughs, asthma, and urinary stones. Walnut rind is used for diarrhea and anemia, and walnut oil is used for menstrual problems and dry skin conditions. Externally, walnut oil is used

for eczema, herpes, eruptive skin complaints, eye inflammations, and hair loss. It is astringent, anthelmintic, cathartic, and tonic. A decoction of walnut tree leaves is used to treat leucorrhea, scrofula, rickets, and meningitis, while the rind or bark is used to check mammary secretions, ulcers, diarrhea, sore mouth, swollen tonsils, uterine hemorrhages, carbuncles, and scrofula.

Almonds are very high in minerals, including calcium, magnesium, potassium and iron, and are the only nut that is alkaline-forming in the body. They are also rich in protein and vitamins B2 and B3. Almonds are also thought to contain a compound that is anti-carcinogenic and for this purpose it is recommended that six almonds be consumed daily. Brazil nuts are 65 percent fat and 14 percent protein. They are rich in the sulfur containing amino acids and selenium. Selenium has an important function as an antioxidant and is involved in immunity. The kernels of cashews are nearly half fat and one-fifth protein. Pecans are rich in oils and vitamins B1 and B2.

Both sweet and bitter almonds come from trees of the same species, the first from *Prunus dulcis* var. *dulcis*, and the last from *Prunus dulcis* var. *amara*. Amygdalin, however, is only found in the bitter almond, which is more prized in medicine. *Prunus dulcis* or almond is a soothing, laxative herb that relaxes spasms. Almonds have sedative and antispasmodic effects making them useful in the treatment of nervous coughs, insomnia, and diseases of the respiratory organs. Internally, sweet almond oil acts as a demulcent while in larger doses it is a laxative. It is traditionally used to treat cough, intestinal irritation, and to mitigate the acrimony of the urine in calculus affections, cystitis, and gonorrhea. Externally, sweet almond oil is used for dry skin conditions and is used in the manufacture of emulsions for medicines, massage oils, skincare preparations, and cosmetics. Al-Kindī has *lawz*, most likely sweet almond, together with jasmine oil, costus, and sandalwood in a salve.[7] Bitter almond is slightly pain relieving and reduces irritation. Bitter almond oil is used in commercial food flavoring, especially in cakes, biscuits, candy, ice cream, maraschino cherries, and marzipan.

Nuts and seeds are concentrated sources of protein, fats, B vitamins, vitamin E, iron, magnesium and other minerals. Some of them contain omega 3 fatty acids and as such can help to improve the balance of cholesterol and the blood lipid profile and reduce the risk of heart disease.

Hazelnuts are very rich in oil calcium, magnesium, iron, potassium, phosphorus, folic acid and vitamin E. Hazelnuts act as a general tonic and strengthen the stomach. Macadamia nuts are very high in fat and can contribute to weight gain if consumed in excess. However in moderation they can help to improve the balance of cholesterol due to their abundance of monounsaturated fats. They are also very low in carbohydrates and as such are suitable for low carbohydrate diets.

Pistachio nuts are rich in oil. In Ayurvedic medicine, they are considered a tonic for the whole body. They purify the blood, lubricate the intestines and can be used for constipation. Walnuts are rich in oil, high in protein, iron and contain omega 3 fatty acids. The husks contain much vitamin C. They can reduce inflammation and pain, lubricate the lungs and intestines, and nourish the brain and adrenal glands.

Peanuts are officially a legume but share many characteristics with nuts. They are rich in B vitamins, vitamin E, iron, zinc, protein, and monounsaturated fats. These healthy fats found in peanuts can help to improve blood cholesterol balance. Peanuts can potentially exacerbate gall bladder conditions and may reduce the metabolic rate and as such peanuts are best avoided if weight loss is desired. Recent evidence suggests that peanuts contain a compound that may provide protection against stomach, colon and breast cancers.

Nuts Notes

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Olive/*Zayt, Zaytūn*

Family: Oleaceae

Botanical Name: *Olea europaea*

Common Names: *English* Olive; *French* Olivier; *Spanish* Olivo; *German* Olive, Ölbaum, Olivenbaum; *Urdu/Unānī* Zaitoon; *Modern Standard Arabic* zaytūn

Safety Rating: Generally Safe Olives and olive oil are generally considered to be safe for most people.

Prophetic Prescription: While the Qur'ān draws our attention to the olive, the Prophet Muḥammad often focused on its practical medicinal applications, encouraging his followers to "[e]at olive oil, and anoint yourselves with it, for it comes from a blessed tree."[1] He said, "[t]here is olive oil for you, eat it, apply it, since it is effective for hemorrhoids."[2] He also stated, "[y]ou have the olive oil from this blessed tree, treat yourself with it, since it cures hemorrhoids [*baṣūr*]."[3] On another occasion, the Prophet said, "[e]at olive oil and apply it, since it is a cure for seventy diseases, one of which is leprosy."[4]

Zayd ibn Arqam narrated that the Prophet directed the companions to treat pleurisy with *kust baḥrī* and olive oil.[5] He also treated the illness with pseudo-saffron and olive oil.[6] The Messenger of Allāh also said, "A mourning woman can rub herself with lotus leaves and olive oil."[7]

In a detailed tradition, Imām ʿAlī ibn Abī Ṭālib extols the values of olive oil in the following terms:

> You have olive oil: take it, moisten your bread with it, anoint yourselves with it, and enlighten yourselves with it. It is the oil of the best of men, the condiment of the elect, and your ointment and condiment. It comes from a tree blessed by Jerusalem since the time it appeared from the time it will disappear. Satan is powerless against this oil.[8]

When a man mentioned that olives cause wind, Imām Jaʿfar al-Ṣādiq corrected him, saying "No, they chase winds."[9] In another tradition, he said, "Olives increase water."[10]

Issues in Identification: It is the consensus that *zayt* is Arabic for olive. Since olives do not grow in Arabia, they need to be imported from the Mediterranean region. During the time of the Prophet, olives were generally imported by caravan from Palmyra.[11]

Properties and Uses: The olive has been cultivated since prehistoric times. While its culinary uses are well-known, its medicinal applications, which involve the leaves and the oil, are less familiar, particularly outside of the Islamic and Mediterranean world. The Muslim world, however, has always revered the olive as a source of food, oil, and medicine. The full appreciation of the olive was the direct result of both Qur'ānic and Prophetic guidance. The Holy Qur'ān, on the one hand, speaks of the olive on numerous occasions, presenting it as a sign of God, and inciting Muslims to ponder upon its properties (6:99, 6:141, 16:11, 23:20; 24:35, 80:29, 95:1). The Prophet Muḥammad, on the other hand, lauded the benefits of the blessed olive tree that provided food, oil, and various internal and external medicinal applications. The Qur'ānic and Prophetic guidance regarding the olive was followed by the companions of the Prophet, the followers of the companions, and the Imāms of the Muslims. Islamic scholars and scientists, inspired by the Qur'ān and the teachings of the Prophet, dedicated themselves to the study of the olive and its various medicinal applications. As a result, the olive became an integral part of Islamic/Unānī phytotherapy and was indicated as an effective treatment for numerous conditions from dry skin to leprosy and from hemorrhoids to pleurisy. Time, experience, and scientific studies have all confirmed the medical applications of the olive.

The olive is considered nutritive, emollient, demulcent, and laxative. Internally, olive oil is used to treat constipation, flatulence, and colic, as well as peptic and gastro-intestinal ulcers. It reduces gastric secretions, which is beneficial to patients suffering from hyperacidity and acid reflux. Middle Eastern, Japanese and North African doctors endorse the opinion that regular consumption of olive oil prevents incidences of gastro-intestinal carcinoma.

Externally, olive oil is used to relieve pruritis, to soothe stings, burns, eczema, psoriasis, rheumatism, sciatica, alopecia, mouth and lip ulcers and dermatitis. In Cuba, research has shown the effectiveness of ozonized olive oil in treating herpes zoster, epidermofitosis, onychomycosis, chronic external otitis, ulcers, hemorrhoids, herpes simplex, genital herpes, vulvovaginitis, vaginitis, gingivostomatitis, keratitis, and other dermatological problems.[12] Applications of olive oil and henna leaves twice daily can help heal hemorrhoids while the concentrated aqueous extract of olive leaves and fruits is effective against dental cavities and leukoplakia in the mouth.[13]

Scientific Studies: *Cholesterol-Lowering Activity* In the United States, producers of olive oil may place the following health claim on product labels: "Scientific evidence suggests that eating about two tablespoons (23 grams) of olive oil daily may reduce the risk of coronary due to the monounsaturated in olive oil. To achieve this possible benefit, olive oil is to replace a similar amount of saturated and not increase the total number of calories you eat in a day." This decision was announced November 1, 2004 by the Food. Similar labels are permitted for omega-3 and walnuts, which also contain monounsaturated oil.[14]

Arterial Elasticifying Activity A health study in 2005 compared the effects of different sorts of olive oil on arterial elasticity. Probands were given a serving of 60 grams of white bread and 40 milliliters of olive oil each morning for two con-

secutive days. The study was conducted in two stages. During the first stage, the probands received polyphenol-rich oil ("extra virgin" oil contains the highest amount of polyphenol), during the second, they received oil with only one-fifth the phenolic content. The elasticity of the arterial walls of each proband was measured using a pressure sleeve and a Doppler laser. It was discovered that after the probands had consumed olive oil high in polyphenol antioxidants, they exhibited increased arterial elasticity, while after the consumption of olive oil containing less polyphenols, they exhibited no significant change in arterial elasticity. It is supposed that, in the long term, increased elasticity of arterial walls reduces vascular stress and consequentially the risk of two common causes of death —heart and stroke. This could, at least in part, explain the lower incidence of both ailments in regions where olive oil and olives are consumed on a daily basis. Animal tests have shown a hypotensive, antiarrythmic, and spasmolytic effect on the smooth muscle of the intestine.[15] Olive oil is a vasodilator, increases HDL, lowers the risk of cardiovascular disease, reduces blood pressure, and has potent antioxidative activity. As a cardiotonic, it is indicated in cases of sexual weakness due to a debilitated cardiovascular system and diabetes.

Respiratory Tract Enhancing Activity Olive oil is a good supportive treatment for diseases of the respiratory tract, including pleurisy and tuberculosis and helps reduce incidences of the common cold, coryzha and pneumonia.

Febrifugal Activity Both leaves and bark, for example, have valuable febrifugal qualities.[16] To this day, people in the Levant treat obstinate fevers with a tea made from olive leaves.

Antihelminthic Activity The anthelmintic oil procured from olive wood is particularly effective in eradicating ringworm and *Tinea versicolor*.

Anticancer Activity In a study conducted by the Universitat de Barcelona, olive fruit extracts were shown to inhibit proliferation and induce apoptosis in human colon cancer cells.[17]

Emollient Activity Olive oil is an excellent emollient. Grieve explains, "[d]elicate babies absorb its nourishing properties well through the skin."[18] This is consistent with Imām Muḥammad al-Bāqir's saying that "oil [applied] at night passes into the blood vessels and nourishes the skin."[19] As a lubricant it is valuable in skin, muscular, joint, kidney and chest complaints, abdominal chill, typhoid and scarlet fevers, plague and dropsy as well as sciatica and arthritis. The leaves of the olive tree are astringent, antiseptic and antimicrobial.[20] They are also smashed and applied externally to check excessive perspiration. Olive oil is also good vehicle for liniments. It is indicated for dry hair and dandruff and is often combined with industrial alcohol to make a good hair-tonic. It is also applied in eyes to relieve inflammation. The powder of the seeds mixed with butter is effective in brittle nails. Combined with honey, the water extracted from the leaves is used as eardrops.

Anti-Leprosy Activity In Aztec herbalism, a mixture of annatto/lipstick tree powder and olive oil is indicated for the treatment of leprosy. In ancient times, in Greece, Crete, and the Levant, olive oil was also used to treat the same dreaded disease. In one preliminary study completed in Cuba, 30 patients suffering from lepromatous leprosy were treated with ozonized olive oil. Four patients recovered, 15 improved satisfactorily, and 13 had to suspend the treatment.[21]

Olive Notes

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Onion/*Baṣal*

Family: Alliaceae

Botanical Name: *Allium cepa*

Common Names: *English* Onion; *French* Oignon; *Spanish* Cebolla; *German* Zwiebel; *Urdu/Unānī* Piyaz, Basl; *Modern Standard Arabic* baṣal

Safety Rating: Generally Safe Although onion is generally considered safe in food quantities, excessive consumption may produce stomach irritation. Theoretically, since onion has some antiplatelet activity, it may increase the risk of bleeding, and should not be consumed in large quantities prior to surgery. For the same reason, concurrent use of warfarin medications should also be avoided.

Prophetic Prescription: Garlic and onion, known as *fūm* and *baṣal*, are mentioned in the Qur'ān in the context of the Exodus (2:61). When garlic and onions were mentioned to the Prophet, he said, "The strongest is garlic." When asked whether it should be forbidden, he responded: "Eat it. And he who eats it should not come near this mosque until its odor goes away."[1] It is reported that the Messenger of Allāh forbade the consumption of fresh garlic and onions prior to interacting with people in the public sphere. As he explained, "He who eats them (garlic and onions) should not come near our mosque. If it is necessary to eat them, make them dead by cooking, that is, onions and garlic."[2]

When Imām Ja'far al-Ṣādiq was asked about eating garlic and onion, he responded that "It is all right to eat them uncooked."[3] The Imām spoke highly of the medicinal benefits of onion in several traditions, saying, "Eat onion for it contains three benefits: it improves the taste, it strengthens the gums, it increases semen (*al-mā'*), as well as intercourse"; and "Onion removes fatigue (*naṣab*), strengthens the nerves, increases the steps (*khaṭā*), increases semen (*al-mā'*), and removes fever."[4] He also stated that "Onion gives good taste, strengthens the back, and clarifies the skin."[5] When the Imām was approached by a client requesting a sexual stimulant, he told him to "Take a white onion (*baṣal*), but it into small pieces, and fry it in olive oil. Then take an egg and break it into a bowl. Put some salt on it, add it to the onion, then fry it and eat it."[6]

The Prophet also advised that "If you go into any town, eat of its vegetables and onions, for they drive away the sickness special to that town. They also remove weariness, strengthen the nerves, increase sexual powers, and remove fever."[7] According to one tradition, Allāh's Messenger said, "Whoever eats wild leek before retiring to bed will be free from flatulence."[8] In a tradition related by Mu'āwiyyah, the Prophet offered food with onions to some delegates, and said, "He who eats not of seasoning or of what diffuses the odor of the earth, such a man will suffer harm from its waters, and will suffer injury."[9] According to 'A'ishah, a wife of the Prophet, Muḥammad's last meal contained onions.[10]

Issues in Identification: It is the consensus that *baṣal* is the Arabic term for onion. As Ghazanfar explains, onion is cultivated throughout Arabia.[11] Although onions have been consumed since the Bronze Age, most of the varieties we are familiar today have been developed in the last century. Even the oldest heirloom varieties like the Flat of Italy, the Jaune Paille des Vertus, and the Australian Brown only trace back to one to two hundred years.

Properties and Uses: Onion has resolvent, suppurative, expectorant, detersive, aphrodisiac, deobstruent, antidotary, diuretic, stimulant, rubefacient, and antiseptic properties. It is used internally for loss of appetite, to treat cough, fever, dropsy, catarrh, chronic bronchitis, cardiovascular diseases, and as an arterioscleoris prophylactic. Combined with equal amounts of mustard oil, onion is applied externally to treat rheumatic pains and other inflammatory swellings. Onions possess properties similar to garlic, but in lesser degrees. According to Ibn Buṭlān, white, watery, and juicy onions are diuretic and facilitate coitus.[12] They are said to be a diuretic, and an aphrodisiac, which generate milk and sperm. The onions we

are familiar with in the West are all modern varieties. Even the oldest heirlooms date from the late 1700s to mid 1900s. The garlic, onions, and leeks the Prophet was familiar with differed from the ones we find in the supermarket today. According to ancient authorities like Camerario, leeks (*Allium porrum*) used to have a clearly distinct bulb, which is no longer the case.[13]

Scientific Studies: *Wound Healing Activity* According to a study conducted by the Chinese University of Hong Kong, onion extract was found effective in scar prevention in Chinese patients having laser removal of tattoos.[14]

Memory Enhancing Activity In a study conducted at Hokkaido Tokai University in Japan, behavioral experiments showed that onion extract had a highly ameliorative effect on memory impairment as a result of its antioxidant effect.[15]

Anthelmintic Activity One study found that *A. cepa* oil has an anthelmintic effect in rats infected with *Trichinella spiralis*, as well as increasing the production of antibodies generated during the life cycle of this parasite.[16]

Antispasmodic Activity One study found that certain saponins found in onion possess antispasmodic activity, explaining the traditional use of onion in the treatment of disturbances of the gastrointestinal tract.[17]

Antithrombotic Activity One particular variety of onion, the Toyohira, was found to possess antithrombotic effects.[18]

Antidiabetic Activity Studies have shown that onion and garlic juices exert antioxidant and antihyperglycemic effects in diabetic rats, showing potential to alleviate liver and renal damage caused by diabetes.[19] Garlic and onion have been experimentally documented to possess antidiabetic properties.[20] One study showed that only garlic, and not onion or fenugreek, is able to significantly lower blood glucose levels in diabetic rats.[21]

Antimutagenic and Anticarcinogenic Activity According to Justus-Liebig-University in Germany, diallyl disulfide, an oil-soluble constituent of garlic, has been reported to cause antimutagentic and anticarcinogenic effects in vitro and in vivo. The study also mentions that white, red, and, particularly, yellow onions have been shown to possess antimutagenic properties.[22] Dietary supplementation with raw brown onions has been shown to have moderate lipid-modulating and immunostimulatory properties.[23] According to one study the alkenyl thiosulfates found in onion and garlic have an antitumor effect.[24]

Aphrodisiacal Activity In a recent study, it was determined that FRS 1000, a beverage containing flavanoids extracted from onion peel, showed unexpected improvement of male sexual function. An in vitro enzyme assay clearly showed that FRS 1000 has a strong phosphodiesterase 5A (PDE 5A) inhibitory activity, which is considered to be important for treatment of erectile dysfunction. Detailed assays of each major ingredient indicated that the antioxidative flavonoid quercetin was responsible for the activity.[25]

Onion Notes

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Orange/*Naranj, Turunj, Utruj*

Family: Rutaceae

Botanical Name: *Citrus aurantium*

Common Names: *English* Bitter orange, Seville orange; *French* Orange amère; *Spanish* Naranjo amargo; Naranja amarga (fruit); *German* Bitterorange, Apfelsine, Pomeranze, Sevilla-Orange, Saure Orange; *Urdu/Unānī* Naranj; *Modern Standard Arabic* naranj, kubād

Safety Rating: Generally Safe Oranges are generally considered to be safe for most people.

Prophetic Prescription: It is reported that the Messenger of Allāh said, "Eat oranges, for they tighten the strings of the heart, and increase the brain."[1] According to one tradition, a companion of Imām Ja'far al-Ṣādiq ate bitter orange (*utruj*) with honey, and it gave him indigestion. As a result, the Imām recommended that he eat dry bread. He did so, and it relieved his indigestion.[2] On another occasion, it was mentioned that it was good to eat bitter orange (*utruj*) on an empty stomach. The Imām stated, "If you take it before you eat, it is good. However, if you take it after you eat, it is the best, it is the best, it is the best."[3] On the same note, the Imām asked one of his companions, "When do your medical doctors recommend you to eat bitter orange (*utruj*)?" The companion responded, "Before eating." The Imām said "No. I order you to take it after you eat."[4] In a similar tradition, Imām Ja'far al-Ṣādiq asked his companions, "Tell me what do your medical doctors recommend for bitter orange (*utruj*)?" They responded, "They order us to eat it before meals." He said, "There is nothing worst than eating it before meals, and there is nothing better than taking it after meals. Use its jam. It perfumes the inside just like musk."[5]

Issues in Identification: According to Dīnawarī, *al-utruj* and *al-turunj* are synonymous, and are the same as *mutq*. He explains that during his time, oranges were widely cultivated in villages throughout Arabia. He describes oranges as having flowers like *rayḥān*, a thin peel, and a fruity taste.[6] He says that *turunj* is a colloquial synonym for *utruj*.

The word "orange" derives from the Sanskrit *nārangaḥ* or "orange tree." The Sanskrit word was borrowed into European languages through the Persian *nārang*, Armenian *nārinj*, Arabic *naranj* (Spanish *naranja* and Portuguese *laranja*), Late Latin *arangia*, Italian *arancia* or *arancio*, and Old French *orenge*, in chronological order. The Spanish *naranja* is derived from the Arabic *naranj* while the Spanish *toronja* is derived from the Arabic *turunj*. If the Spanish meaning is any indication, *naranj* referred to orange while *turunj* referred to grapefruit in the Arabic spoken in al-Andalus. However, based on the description of *naranj* provided by Ibn al-Bayṭar, Said has identified the fruit as *Citrus aurantium*. The terms *naranj*, *turunj*, and *utruj* may all refer to this specific citrus fruit. In Unānī *ṭibb*, however, the term *turunj* applies to *Citrus medica*.

Citrus appears to have originated in Asia and was transported westward to the ancient cultures of Mesopotamia (4000 B.C.). From there, they spread to Turkey, Egypt, Greece, and North Africa. The Romans were acquainted with lemons, as well as sour oranges and citron. As a result of the disintegration of the Roman Empire, however, many citrus groves were abandoned and simply vanished. It was only with the spread of Islām into Europe that citrus was re-introduced into Sicily, where it was recorded as growing in the year 1002, and the Iberian Peninsula.[7] According to some scholars, citron, sour orange, lemon, and pomelo were brought to North Africa and Spain by 1150 C.E.[8] For Biggs, McVicar, and Flowerdew, "[t]he lemon reached Egypt and Palestine in the tenth century, and was cultivated in Genoa by the mid-fifteenth century."[9] According to some scholars, the bitter orange was brought back to Italy by the Crusaders.[10] For others, the introduction dates from before the 9th century. Citrus fruit may very well have been brought into Andalusia in 711 C.E.

According to botanists, the oranges grown in Islamic Europe were not the sweet oranges we know today, but bitter oranges, known as sour oranges or Seville oranges, after the city of Seville, which was the center of Arabic culture in the Iberian Peninsula. According to Biggs, McVicar, and

Flowerdew, the sweet orange was first seen in India in 1330, and was first planted in Versailles in 1421. Another, planted in Lisbon in 1548, became the "mother" of most European sweet orange trees and was still living in 1823.

According to most botanists, it was only in the 1500s that Portuguese traders introduced sweet oranges from India or China to Europe and spread them throughout the world. Some of these scholars assert that it was Vasco de Gama (1460 or 1469–1524) himself who brought the first sweet orange tree root to Portugal.[11] Since sweet oranges came from China via India and Portugal, this may explain why they are known to North Africans as *lisin* or *latshīn* (Chinese) and *burtuqāl* (Portuguese) and many languages have different words for bitter and sweet orange, such as the Persian *narang* and *porteghal*.

Although the sour orange of Persian provenance may have predominated in the Mediterranean until the 1500s, the sweet orange also clearly existed, since Dīnawarī (828–896) spoke of two varieties of *utruj*, the sweet (*ḥalū*) and the sour (*ḥāmiḍ*).[12] Overlooked by botanists until the present, this information requires writers to rectify their theories regarding the history and spread of citrus. Sweet oranges may have first been seen by Europeans in 1330; however, they clearly existed in the seventh century as the words of Dīnawarī demonstrate.

Properties and Uses: *Citrus aurantium*, known as bitter or Seville orange, is a bitter, aromatic, expectorant herb that has diuretic effects, lowers blood pressure, improves digestion, reduces inflammation, and controls bacterial and fungal infections. It is used internally for flatulent indigestion and diarrhea, stubborn coughs, colic in babies, and shock. Externally, it is used in aromatherapy to treat tension, depression, and skin problems.

Citrus bergamia, known as bergamot orange, is a bitter, aromatic herb that relieves tension, relaxes spasms, and improves digestion. Its seeds produce neroli oil, which is stimulant and reputedly aphrodisiac, as well as bergamot oil which is more sedative and healing. Internally, orange blossom water is used for colic in babies. It is used externally in douches and baths for vaginal infections, and in aromatherapy for stress-related complaints and skin conditions.

Citrus reticulata, known as mandarin orange, tangerine, and clementine, is a bitter, spicy, warming herb that stimulates digestion, lungs, and spleen. It acts mainly upon the liver, gall bladder, and breasts. It is an energy stimulant, affecting the liver and kidneys. It also relieves pain. It is used internally for indigestion, flatulence, vomiting, wet coughs, liver and gall bladder disorders, bronchial congestion, mastitis, breast cancer, and pain in the liver, chest or breasts. It is also used to treat lumbago and orchitis.

Scientific Studies: *Weight-Loss Promoting Activity* According to a review of research conducted by John Hopkins University, the use of *Citrus aurantium* as a diet is promising. However, larger and more rigorous clinical trials are necessary before adequate conclusions can be drawn regarding its safety and efficacy in promoting weight loss.[13] The Surgeon General of Canada, however, has issued a warning against the consumption of synephrine, the main active compound in bitter orange, as it is structurally related to ephedrine, which has been restricted in Canada because of adverse cardiovascular and cerebrovascular reactions.[14] This decree, however, seems premature and reactionary, considering the fact that *Citrus aurantium* has been used safely in Chinese medicine for thousands of years.

Anticancer Activity According to a study conducted by Mazandaran University of Medical Sciences in Iran, citrus extract from *Citrus aurantium* appears to protect bone marrow cells and reduce genotoxicity.[15] *Citrus aurantium* also contains monoterprenes, such as d-limonene, which help to prevent liver tumors. Animal trials have shown that d-limonene stops the spread of cancer of the liver to the colon, and slows the growth of cancerous tumors originating in the liver.[16]

Cardiovascular Toxic Activity In a case study of a single patient reported by Mercer University in Atlanta, the use of *Citrus aurantium*–containing supplements may present as a risk for cardiovascular toxicity; however, additional studies/case reports are needed to validate this conclusion.[17]

Radioprotective Activity In a controlled animal trial conducted by Mazandaran University of Medical Sciences in Iran, the citrus extract of *C. aurantium* was shown to possess radioprotective properties, reducing the clastogenic effect of radiation on mice bone marrow.[18] Another study conducted by Kinki University in Osaka, Japan, demonstrated the antimutagenic activity of bitter orange.[19]

Orange Notes

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Palm Tree/*Nakhl*

Family: Arecaceae

Botanical Name: *Phoenix dactylifera*

Common Names: *English* Date Palm; palm pith, heart of palm; *French* Palmier; chou palmiste; *Spanish* Palmera datilera; palmito (pith); *German* Palme, Dattelpalme; *Urdu/Unānī* Khajoor Ka Paid, Darakht-e Khurma; *Modern Standard Arabic* nakhl, jummār, qalb al-nakhlah

Safety Rating: Generally Safe Heart of palm is generally considered to be safe for most people.

Prophetic Prescription: The palm tree is mentioned many times in the Qur'ān (50:10, 26:148, 2:266, 6:99, 6:141, 13:4, 26:11, 26:67, 27:91, 28:32, 19:23, 19:25, 20:71, 23:19, 26:148, 26:34, 50:10, 54:20, 55:11, 55:68, 69:7, 80:29). According to 'Abd Allāh ibn 'Umār, while the Messenger of Allāh was sitting with a group of believers, someone offered him some palm-marrow (*jummār*), and he commented, "Among trees, there is one that resembles a Muslim. It is an evergreen that does not shed its leaves."[1] He is also reported to have said, "Eat marrow, for it causes an increase of the brain."[2]

Issues in Identification: It is the consensus that *nakhl* refers to the palm tree and that *jummār*, also known as *qalb al-nakhlah* and *qalb al-nakhallāh*, is the pith of the palm tree.

Properties and Uses: Heart of palm, also known as palm heart, palmito or swamp cabbage, is a vegetable harvested from the inner core and growing bud of several species of palm trees, including the coconut (*Cocos nucifera*), Palmito Juçara (*Euterpe edulis*), Açaí palm (*Euterpe oleracea*), sabal (*Sabal* spp.) and pejibaye (*Bactris gasipaes*) palms. When the vegetable is taken from the inner core of wild palm trees, the tree must be killed to be harvested. This problem does not arise with domesticated palm trees, from which only the growing bud is removed. Because heart of palm is labor-intensive to harvest, it is quite costly. Heart of palm contains 25 percent protein, 15 percent vitamin C, 1 percent calcium, and 4 grams of protein. It is also a good source of protein and contains virtually no fat.

Scientific Studies: *Vitamin A* Many studies suggest that palm fruit and its derivatives provide plenty of opportunities to alleviate endemic vitamin A deficiency.[3] As part of their marketing campaign, palm oil producers attempt to present their product as natural and healthy. Most fail to address the fact that palm tree plantations are responsible for destroying the forests of Malaysia and Indonesia and putting the orangutan in peril.[4]

Cholesterol-Lowering Activity According to a World Health Organization report released in 2003, there is convincing evidence that palmitic oil consumption contributes to an increased risk of developing cardiovascular diseases.[5] An epidemiological study of Chinese in Hong Kong and Singapore suggest that the higher rate of cardiovascular mortality in Singapore may be the result of a higher consumption of coconut and palm oil.[6] The vast body of evidence, however, suggests that palm oil does indeed reduce cholesterol levels.[7]

Cardioprotective Activity According to an animal study conducted by the All India Institute of Medical Sciences, dietary palm olein oil protects rat heart from oxidative stress associated with ischemic-reperfusion injury.[8] According to another study conducted by the same institute, dietary palm oil causes augmentation of myocardial antioxidant enzymes and protects against isoproterenol-induced myocardial necrosis and associated oxidative stress.[9]

Multiple Activity According to a report released by Ohio State University Medical Center, the tocotrienol forms of natural vitamin E possess powerful hypocholesterolemic, anticancer and neuroprotective properties that are often not exhibited by tocopherols. Oral tocotrienol protects against stroke-associated brain damage in vivo.[10]

Anticancer Activity A large body of evidence has shown that palm oil is antimutagenic and anticarcinogenic,[11] suppressing colon cancer,[12] prostate cancer,[13] skin cancer,[14] and breast cancer.[15]

Palm Tree Notes

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Pear/*Kūmīthrā*

Family: Rosaceae
Botanical Name: *Pyrus* spp.
Common Names: *English* Pear tree, pear;

French Poire; *Spanish* Pera; *German* Echter Birnbaum; *Urdu/Unānī* Nashpati, Kamussara; *Modern Standard Arabic* ijjāṣ, kūmīthrā, injāṣ

Safety Rating: Generally Safe Pears are generally considered to be safe for most people.

Prophetic Prescription: Imām ʿAlī ibn Abī Ṭālib said, "Eat pears (*al-kamathrā*), for they burnish the heart."[1] Imām Jaʿfar al-Ṣādiq said to a man who complained to him of a pain he felt in his heart, "Eat pears."[2] He also said: "The pear purifies the heart, and it calms internal pains."[3] On another occasion, a man complained to the Imām about heart pain and pressure. He advised him to "Eat pear."[4] "Pear burnishes the stomach, and strengthens it. It is the same as quince. It is more beneficial to take it on a full stomach than on an empty one. He who is affected by disease (*ṭakhā'*) should eat it [after a meal]."[5]

Issues in Identification: In both classical and colloquial Arabic there is confusion between plums, pears, and apricots. Bīrūnī speaks of *ijjāṣ*, *injāṣ*, *kumtharā*, and *ʿayn al-baqar*, all of which are identified by Said as *Prunus domestica*, including plum, pear, and apricot, the later referring to the pear tree, *Pyrus communis* L. If the Hebrew word *agass* is of any indication, then the Arabic word *ijjāṣ* may have meant pear originally, only to have been generalized to include plums at some later point. Among the ancient Greek writers, Cato (234–149 B.C.E.) mentioned six varieties of pear while Virgil (70–19 B.C.E.) spoke of three. By the time of Pliny (23–79 C.E.), there were close to forty varieties of pears.[6]

Properties and Uses: The fruit of *Pyrus communis*, the pear, is used primarily as a nutrient. Pears are used internally as a diuretic and, as a sauce, are equally effective as prunes to treat constipation. In Chinese medicine, the pear is considered a *yin* or calming fruit. Externally, they are used as an analgesic.

Scientific Studies: *Iron Absorption Enhancing Activity* According to a human trial of 234 women, the consumption of pear juice moderately enhanced the absorption of iron from a rice meal.[7]

Pear Notes

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Plums/*Ijjāṣ*

Family: Rosaceae

Botanical Name: *Prunus domestica*

Common Names: *English* Plum tree, plum; *German* Hauspflaume, Zwetschgenbaum; *French* Prunier, Prunier de Damas; *Spanish* Ciruelo; Ciruela, Pruna (fruit); *Urdu/Unānī* Alu Bukhara, Ijjas; *Modern Standard Arabic* barqūq, ijjāṣ

Safety Rating: Generally Safe Plums are generally considered to be safe for most people.

Prophetic Prescription: Imām Jaʿfar al-Ṣādiq recommended his followers to eat plums as "[t]hey are beneficial for bitterness and relax the joints."[1] In a longer version, he advises against eating too much plum as they may cause wind in one's joints.[2] A man complained to Imām Jaʿfar al-Ṣādiq of gall (*al-marār*) which inflamed in him until he was almost bent over. The Imām said to him, "Make it subside with plums (*al-ijāṣ*)."[3] The Imām also said, "Plums on an empty stomach calm the bile but stir up the wind."[4] The Imāms from the Household of the Prophet also said to "Eat mellowed (*al-ʿatīq*) plums, for the benefit of mellowed plums remain and the harm is removed. Eat them peeled, for they are beneficial for every [kind of] gall and heat, and the blaze stirred up from it."[5]

Issues in Identification: In both classical and colloquial Arabic there is confusion between plums, pears, and apricots. The same occurs in European languages where the word for "plum" has a long history of ill-defined use. As Davidson explains, "In the Middle Ages it seems to have meant virtually any dried fruit."[6]

According to Muḥsin ʿAqīl, *ijjāṣ* is known as *barqūq* in Egypt, and as *ijjāṣ*, *injāṣ*, and *anjāṣ* in Syria. The *Encyclopedia of Fruits and Nuts* also asserts that *Prunus domestica* is known as *barqūq* in Arabic.[7] In the Maghrib, *ijjāṣ* refers to pear.[8] According to Batool Ispahany, the term *ijjāṣ* is Arabic for plum.

The Arabic *ijjāṣ* may have referred originally to pear, only to have been generalized to include plum or *barqūq* at some later point. For most Arabs, the most precise word for plum in Arabic is *barqūq* which derives from the Latin *praecox*, which means "precocious." Although it means

plum at the present, it originally referred to apricot; hence, we have the Spanish *albaricoque* or apricot, which evolved from the Arabic *al-barqūq*. Apricot fruit is now known by Arabs as *mishmish*.

The plums that were prevalent during the time of the Prophet and the Imāms was the Damson plum or *Prunus domestica* ssp. *insititia*, a blue-skinned, rather acid variety with a tart flavor; it was ideal for making preserves and jams, and was often dried.

Properties and Uses: *Prunus domestica* or plums are considered nutritive, antibilious, refrigerant, demulcent, cooling, laxative, and digestive. They are typically eaten dried, soaked, and cooked, preserved in brandy or vinegar, and in sauces or stews, especially in Arab dishes, as well as in stuffing, desserts, and cakes. Internally, prunes are used for constipation, and are often added to laxative preparations. The laxative effect of prunes is the result of various compounds present in the fruits, such as dietary, sorbitol, and isatin. Prunes and prune juice are often used to help regulate the functioning of the digestive.

Scientific Studies: *Hypoglycemic Activity* In a two-month controlled animal trial conducted by the Indian Institute of Technology, *Prunus dulcis* seeds showed a definite hypoglycemic effect. The active factor appeared to be a non oil fraction which is only partly soluble in ethyl ether.[9]

Aphrodisiacal Activity According to a 3-month animal trial conducted by King Saud University in Saudi Arabia, *Prunus dulcis* showed no toxicity while the extract significantly increased sperm motility and sperm contents in epididymides without producing any spermatotoxic effect.[10]

Plums Notes

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Pomegranate/*Rummān*

Family: Punicaceae
Botanical Name: *Punica granatum*
Common Names: *English* Pomegranate, Carthagian apple; *French* Grenadier; Grenade (fruit); *Spanish* Granado; granada (fruit); *German* Echter Granatbaum, Granatapfelbaum; granatapfel; *Urdu/Unānī* Anar, Rumman; *Modern Standard Arabic* rummān

Safety Rating: Generally Safe to Dangerous Pomegranate fruit and juice are generally considered to be safe for most people. Some people, though, are allergic to pomegranate. This is particularly the case with people who suffer from plant allergies. Pomegranate juice seems safe for women who are pregnant or lactating. However, pomegranate extract should be avoided by such women. Pomegranate should not be consumed in medicinal doses by patients suffering from low blood pressure nor should it be consumed by women who are pregnant or breastfeeding. Pomegranate should not be consumed for two weeks prior to surgery. In large doses, pomegranate juice is emetic, nauseant, and vertigogenic. Stronger doses of over 80 g may cause chills, collapse, dizziness, hematemesis, visual disturbances, and death. Externally, when applied to the skin, pomegranate juice may cause itching, swelling, runny nose, and breathing difficulties. Pomegranate rind, however, is a potential carcinogenic substance. The bark of the root can be poisonous is taken in excess.

Prophetic Prescription: According to the Qur'ān, the pomegranate is one of the fruits of Paradise (6:99, 6:141, 55:68). As Almighty Allāh says, "Therein fruits, and palm trees, and pomegranates" (55:68). The Messenger of Allāh is reported to have said, "The palm tree and the pomegranate were created with what was left over from the dust of Adam."[1] According to the Prophet, "There is not a pomegranate (*rummān*) which is not cross-fertilized by a seed of a pomegranate from paradise."[2] He also said, "No pomegranate (*rummān*) grows ripe without being watered by a drop of the water of the Garden" and that "No pomegranate (*rummān*) seed enters into any one of you but that it enlivens the heart, and cleanses

you from the Devil and from evil aspirations for forty days."[3] The Messenger of Allāh also said, "Pomegranate (*rummān*) and sumac (*summāq*) are effective in cases of bilious diseases"[4] and that "Pomegranate (*rummān*) and its rind strengthens digestion."[5] He is also reported to have said, "No one eats pomegranates without causing the Devil forty days of sickness" and "He who eats a pomegranate and finishes it, verily Allāh will enlighten his heart for forty days."[6] Imām ʻAlī spoke highly of the benefits, both spiritual and medicinal, of the pomegranate:

> Eat pomegranate (*rummān*) with its pulp for it is good for the abdomen. Every grain of it which settles in the abdomen is life for the heart and illumination for the soul, and the temptations of Satan are quelled for forty mornings. The pomegranate (*rummān*) is among the fruits of Paradise. Allāh, the Mighty and Exalted, has said, "Therein are fruits, and palm trees, and pomegranates" [55:68].[7]

The Imām also stated that "Whoever eats pomegranates (*rummān*) has the light of Allāh in his heart."[8] He also said that the pomegranate was the best of fruit, satisfying hunger and helping digestion.

Imām Jaʻfar al-Ṣādiq said, "Feed your children pomegranates (*rummān*) for it speeds up their growth."[9] When sweet pomegranate was mentioned in his presence, he said, "The bitter one is the best for the belly."[10] The Imām recommended his followers to "Eat pomegranate with its pulp for it burnishes the stomach and it increases the intellect."[11] In a similar tradition, he said, "Eat bitter pomegranate with its flesh for it burnishes the stomach."[12] He also assured his followers that "[w]hoever eats pomegranate (*rummān*) before sleeping is secure until morning."[13] When one of his followers complained of indigestion due to overeating, the Imām said, "Take this sweet pomegranate (*rummān*) and eat it with its pulp, for it burnishes the stomach, cures indigestion, digests your food, and swims in your inside."[14]

According to Imām Ḥasan al-ʻAskarī, "Every pomegranate (*rummān*) is a sweet pomegranate, for it calms the blood and purifies it in the chest."[15] According to Imām Mūsā al-Kāẓim, a person who eats one pomegranate first thing on Friday morning, his heart will remain enlightened for forty days, if he eats two, it will remained enlightened for 80 days and so on.

Issues in Identification: It is the consensus that *rummān* is Arabic for pomegranate. According to Bīrūnī, *maẓẓ*, also known as *rummān al-barr*, is wild pomegranate. As Nehmé explains, *Punica* is *rummān*, and *Punica granatum* is *rummān shāʼiʻ*.[16] As Ghazanfar explains, *Punica granatum* is indigenous to Asia. It is cultivated in southern Arabia and parts of the mountainous areas of northern Oman.[17] In all likelihood, the pomegranates consumed by the Prophet were of Egyptian provenance, probably from Hulwan.[18]

Properties and Uses: *Punica granatum* is considered a bittersweet astringent, refrigerant, styptic, stomachic, antidiarrheal, anthelmintic, antiviral, demulcent, and febrifugal herb. Internally, *P. granatum* is used for diarrhea, both common and chronic, amebic dysentery, intestinal worms, digestive disorders, kidney and gall bladders stones and fever. For tapeworm, a tea is made from the bark, taken at one hour intervals on an empty stomach. The rind is also astringent in diarrhea, leucorrhea, hemorrhage, cancer and ulcers of the uterus and rectum, as well as intermittent fever. In India, the rind is used to treat diarrhea and chronic dysentery, and is often combined with opium. The pomegranate's astringent properties make it effective in cases of diarrhea and dysentery. The leaves and flowers are styptic, and tonic. Large doses cause vomiting, purging, cramps, numbness in legs, giddiness, dim vision, and increased urine. The rind is also used for tanning, and dying. The fruit is used as cooling article of food.

Externally, *P. granatum* is used for anal itching, vaginal discharge, mouth sores, and throat infections. The roasted and powdered skin of the pomegranate fruit, combined with a little vegetable oil, is considered highly beneficial in the treatment of anal itching. Powder of the dry rind mixed with pepper and common salt is applied as a very good dentifrice. Its regular application strengthens the gums, stops bleeding, prevents pyorrhea, cleans the teeth and preserves them for a long time. Ibn Buṭlān stated that sour pomegranates are good for an inflamed liver.[19] *Jullinār* or pomegranate flower was used by al-Kindī in a poultice for the liver and the stomach, to relieve pain of the spleen and to strengthen it.[20]

Scientific Studies: *Antihelminthic Activity* The bark is highly effective as a vermifuge and may be used fresh or dried. *Punica granatum* is effective in destroying intestinal parasites because it contains unusual alkaloids, known as pelletierines, which paralyze tapeworms so that they are easily expelled in conjunction with a laxative. The root-bark is preferred to the stem-bark as it contains greater quantities of punicine, an alkaloid that is highly toxic to tapeworms. A decoction of the bark is used for expelling tapeworm.

Antimicrobial Activity According to one study, pomegranate possesses antimicrobial activity.[21]

Anti-Diarrheal Activity According to an in vitro study, pomegranate acts against some causes of diarrhea, including certain fungi, viruses, and intestinal worms.[22]

Cancer-Causing Activity Some studies suggest that pomegranate seeds and peels increase the risk of certain cancers because the dried peel contains high amounts of aflatoxin B-1, a known carcinogen.[23] Scientists have discovered that women in Northern Iran have the highest rate of esophageal cancer in the world, possibly due to their consumption of *majur* or *majoweh* during pregnancy.[24] The combination of pomegranate seeds, black pepper, dried raisins, and sometimes garlic, seems to be so harsh that it injures the esophagus, leading to cancer. Other factors may include eating foods at higher-than-normal temperatures, preserving food by sun-drying, and eating few fruits and vegetables.[25]

Pomegranate Notes

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Pseudo-Saffron / *Waras*

Family: Fabaceae

Botanical Name: *Flemingia grahamiana*

Common Names: *English* Bastard saffron; *French* No common name; *Spanish* Flemingia; *German* No common name; *Urdu/Unānī* Waras, Ikhwan-u Zafran, Kurkuma, Khus; *Modern Standard Arabic* waras

Safety Rating: Unknown *Flemingia* is generally considered to be safe when used as a dye. Internally, the safety of the plant has not been established.

Prophetic Prescription: The Messenger of Allāh said, "Do not press the throats of your children when you have costus (*qusṭ*) and pseudo-saffron (*waras*)."[1] According to Tirmidhī, "The Prophet, may Allāh bless him and grant him peace, used to recommend olive oil and pseudo-saffron (*waras*) as a remedy for pleurisy."[2] During the time of the Prophet, women would douche themselves with pseudo-saffron for forty days after giving birth.[3] They would also wash their faces with pseudo-saffron to remove spots from their faces. According to Ibn Ṭūlūn and Abū Nu'aym al-Iṣbahānī, when the head of Imām al-Ḥusayn was brought to Yazīd, it was covered in pseudo-saffron (*wasmah*).

Issues in Identification: Elgood identifies *waras* as pseudo-saffron.[4] According to Said, *waras*, which is also known as *ghumr*, *bādirah*, *huss*, and *gindīr*, is produced from the roots of

Ceylon cornel tree (*Memeceylon tinctorium*), a tree indigenous to Yemen. Its roots are of two kinds: a deep red which is the most desired *al-bādirah*, and the inferior with white color combined with the red. Johnstone and Turkī equally identify *waras* as *Memecyclon tinctorium*.[5] According to Akīlī *waras* and *qinbīl* refers to mallotus obtained from the coating from the seed pods of the *Kamala* tree or *Mallotus philippinensis*.[6] Álvarez de Morales and Girón Irueste identity *waras* as curcuma, although this seems unlikely.[7]

Dīnawarī, however, says that *waras* is very yellow, that it stains clothing, that it is used as a dye, and that it is known as *mūris*.[8] He also explains that a cultivated plant, not a wild one, grows a lot in Yemen, and resembles *simsim*.[9] For Farooqi, *warus* is the name of a yellow dye obtained from the pods of *Flemingia grahamiana*. According to *King's American Dispensatory* from 1898, *waras*, *wurras*, and *warras*, though properly referring to saffron, has been applied to *kamala*, but more especially to a certain powder, the botanical source of which is not definitely known, though thought to come from *Flemingia grahamiana*.[10] However, in 1887, David Hooper had identified *waras* as *Flemingia grahamiana* on the basis of field work in southern India.[11]

Properties and Uses: The leaves and flowers of *Flemingia strobilifera* are used to treat tuberculosis. A decoction of flowers is used as a post-partum bath. It is used in Arabia to treat chills and coughs and is considered a vermifuge. Its roots are used in African medicine for male impotence and to lower fever. It is found in the Middle East, Yemen, Africa, and Asia.

Scientific Studies: *Anthelmintic Activity* According to studies conducted by North Eastern Hill University in India, the crude root-peel extract of *Flemingia vestita* is highly effective against *Fasciolopsis buski*, the giant intestinal trematode.[12] In other studies study conducted by the same institution, the root-tuber peel of *F. vestita* was equally efficient in treating the cestode *Raillietina echinobothrida*.[13] In another study conducted by the same university, the root-tuber-peel extract of *F. vestita* was shown to be effective against a host of helminth parasites.[14]

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Purslane/ *Baqalah al-Ḥamqā'*

Family: Portulacaceae

Botanical Name: *Portulaca oleracea*

Common Names: *English* Purslane, Garden purslane, Common purslane; *French* Pourpier, Pourpier potager, Pourcellaine; *Spanish* Verdolaga; *German* Gartenportulak, Sommer-Portulak, Gewürz-Portulak, Gemüse-Portulak, Sommer-Postelein, Burzelkraut, Bürzelkraut, Bürzelkohl, Kreusel, Sauburtzel, Portulak; *Urdu/Unānī* Khurfa, Khulfa, Rajlah, Rijla; *Modern Standard Arabic* ḥurfah, rijlah

Safety Rating: Generally Safe Although

purslane is generally considered to be safe for most people even in high doses, individuals with a history of kidney stones should use it with caution as it can increase kidney filtration, urine production, and possibly cause a stone to move. Purslane injections have been found to induce powerful contractions of the uterus while oral use is said to weaken them. In any event, purslane should be avoided during pregnancy.

Issues in Identification: *Portulaca oleracea* originates from India where it has been eaten for thousands of years. It is also found in the Middle East where it is a cultivated plant. As Chaudhary explains, *Portulaca oleracea* is known as *rijlah* and *baqlah* in Saudi Arabia. It is grown as a pot-herb and is a serious weed of cultivated areas.[1]

Prophetic Prescription: It is related that the Prophet had an ulcer on his leg. He passed by some purslane, applied it to his leg, and exclaimed, "Praise be to Allāh for you, O purslane (*baqalah al-ḥamqā'*), wherever you may be!"[2] In another tradition, the Prophet said, "Purslane (*al-rijlah*) is a cure against ninety diseases, the first of which is headache."[3]

Issues in Identification: According to Hans Wehr, *baqala* is an Arabic verb meaning "to sprout" in the context of a plant. The dictionary identifies *al-baqalah al-ḥamqā'* as purslane. Elgood and Turkī also identify it as purslane.[4] Nehmé explains that *Portulaca* is *farfaḥīn* and *rijlah*, and *Portulaca oleracea* is *farfaḥīn baqlī*, as well as *baqlah*.[5] As Álvarez de Morales and Girón Irueste explain, *baqlah* refers to *Portulaca oleracea* L.[6] According to Bīrūnī, the plant is also known as *farfakh* and Said says that it refers to *Portuluca obracea* L. Sūyūṭī says that it is also known as *rajlah*, *farfakh*, or *farfakhīn*.[7] Ibn Ṭūlūn says that it is known as *al-rijlah al-farfaj*.[8]

According to Ghazanfar, *Portulaca oleracea* is found in Arabian cities and as a weed of cultivated areas and farmlands.[9] According to Mandaville, *Portulaca oleracea* is common in eastern Arabia where it is a weed of gardens and walk edges. It is known as *barbīr*. The entire plant is edible, either raw or cooked. When sold as a salad vegetable, it is known by various names, including *baql*. According to Ghazanfar, *Portulaca oleracea* is known as *al-khaleqah* and *farfena*. It is also known as *ḥumḍeh* in Saudi, Omani, and Dhofari Arabic.[10]

Properties and Uses: *Portucula oloracea*, known commonly as purslane, is a sour, diuretic, cooling herb that lowers fever and clears toxins. It is considered demulcent, refrigerant, slightly astringent, sedative, emollient, alterative, and antibacterial. It is also regarded as a purgative, cardiotonic, muscle relaxant, and anti-inflammatory.

Internally, it is used for dysentery, acute enteritis, appendicitis, mastitis, hemorrhoids, urinary discharge, diarrhea, dysentery, piles, and postpartum bleeding. It is used for headaches, stomach, intestinal and liver ailments, cough, asthma, shortness of breath and arthritis. It is not given to pregnant women or to patients with digestive disorders. Externally, it is applied to boils, burns, psoriasis, snakebites, bee stings, and eczema.

Scientific Studies: *Antioxidative Activity* Purslane has been recently identified as an excellent source of alpha-linolenic acid.[11] Alpha-linolenic is an omega-3 fatty acid, also found in fish oil. This crucial content in purslane plays an important role in human growth, development and preventing diseases. Since this fatty acid cannot be synthesized by humans it has to be ingested. Purslane leaves contain omega-3 fatty acids which regulate the body's metabolic activities. Purslane is known to have one of the highest known concentrations of omega-3 fatty acids in any plant. It is also an excellent source of vitamins A, C and E, and essential amino acids. Reports describe purslane as a "power food of the future" because of its high nutritive and antioxidant properties. Purslane is richer than spinach in many nutrients, containing ten times more alpha-linolenic acid and six times the vitamin E. According to the Center for Genetics, Nutrition and Health, in Washington, D.C., one hundred grams of fresh purslane leaves contains about 300–400 mg of 18:3w3; 12.2 mg of alpha-tocopherol; 26.6 mg of ascorbic acid; 1.9 mg of beta-carotene; and 14.8 mg of glutathione.[12]

Antidiabetic Activity According to a study conducted by the University of Victoria in Canada, *Portulaca oleracea* has sufficient scientific evidence in its favor to support its traditional use for urinary problems and high cholesterol.[13]

Broncho-Dilatory Activity According to a study conducted by Mashhad University of Medical Sciences in Iran, *P. oleracea* has a relatively potent but transient bronchodilatory effect on asthmatic airways.[14]

Analgesic and Anti-inflammatory Activity In a study conducted by Zayed Complex for Herbal Research and Traditional Medicine, in the United Arab Emirates, 10 percent ethanolic extract of the aerial parts of purslane showed significant anti-inflammatory and analgesic properties after intraperitoneal and topical but not oral administration when compared with the synthetic drug diclofenac sodium as the active control. Results indicate this cultivar species of *Portulaca* also possesses some of the claimed traditional uses of the wild species in the relief of pain and inflammation.[15]

Purslane Notes

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Quince/*Safarjal*

Family: Rosaceae

Botanical Name: *Cydonia oblonga*

Common Names: *English* Quince; *French* Cognassier, Coignassier; *Spanish* Membrillero; Membrillo (fruit); *German* Echte Quitte, Birnquitte; *Urdu/Unānī* Bahi, Bihi; *Modern Standard Arabic* safarjal

Safety Rating: Generally Safe Quince is generally considered safe for most people when consumed as food. Little is known, however, about is safety in medicinal doses. Since the seeds contain cyanide, they are certainly not safe to consume. Quince should not be taken medicinally by women who are pregnant or lactating.

Prophetic Prescription: The Islamic religion is concerned with both the spiritual disease of the heart, and the physical disease of the heart. For the latter, the Prophet Muḥammad recommended the use of *Cydonia oblonga*, or quince, an anti-inflammatory and anti-spasmodic herb that acts mainly as a circulatory and digestive stimulant. The Messenger of Allāh stated, "Eat quince as it helps the heart. There has not been a single Prophet of Allāh who has not eaten it."[1] The Messenger of Allāh said of quince, "Take this, O Ṭalḥa, for it rests and relaxes the heart."[2] It is also related that he gave a quince to one of his companions, saying, "Here you are, Abū Dharr, for it strengthens the heart, refreshes the soul, and dispels heaviness of the chest."[3] He also said, "Feed quince to your women-folk when they are pregnant, for it makes the heart tender, and it makes the heart better."[4] Regarding the preferred manner of consuming the fruit for medicinal purposes, the Prophet said, "Eat quince on an empty stomach."[5]

According to the Messenger of Allāh, not only is quince beneficial for the heart, it gives a great deal of physical strength. "Eat quince," he advised, "for it softens the heart, and Allāh has not sent any prophet as His Messenger without giving him the quince of the Garden to eat, for that quince gives him the strength of at least forty men."[6] In another tradition, he described quince as "a tonic that musters the strength of the heart, lifts up one's spirit, satisfies one's desire for food, dissipates uptightness of the chest, and softens the heart."[7] When the Prophet was given a quince from Ṭā'if, he said, "Quince is an excellent food: it perfumes the mouth, eliminates *al-dujjā'* [darkness], which is the sadness which oppresses the heart."[8] The Prophet also believed that quince was beneficial for the eyesight. As he expressed, "To eat quince is to drive away dimness of vision."[9]

The "uptightness of the chest" in the prophetic tradition refers to conditions such as angina and is symptomatic of heart disease. The Prophet explained that the use of quince can "soften the heart" which is metaphorical for "healing the heart" but may also allude to the ability of quince to lower high cholesterol levels and possibly inhibit excessive platelet aggregation while helping promote fibrinolysis. Bown has noted that the fruit of *Chaenomeles*, or flowering quince, is an "anti-inflammatory and anti-spasmodic herb that acts mainly as a circulatory … stimulant."[10] According to Ibn Buṭlān, quince cheers people up and stimulates them.[11] The anti-inflammatory effect of quince may assist in reducing the risk of myocardial infarctions. Its antispasmodic and stimulating effect on the circulatory system may help regulate and strengthen cardiac function.

The "softening of the heart" may refer to the ability of the mucilage of quince to soothe the sore breasts of women.

The Imāms from the Household of the Prophet also stressed the importance of quince in the treatment of cardiovascular conditions. Imām ʻAlī ibn Abī Ṭālib stated that "[e]ating quince increases a man's strength and removes his weakness."[12] Echoing the words of the Prophet, Imām Jaʻfar al-Ṣādiq explained that quince removes grief: "Quince removes sadness," he said, "like the hand which wipes sweat from the forehead."[13]

The Imām also recommended the use of quince saying that it "purifies the stomach and makes it fragrant."[14] He promoted the use of quince, saying, "Eat sweet quince with its seeds, for it fortifies what is weak, and makes fragrant and purifies the stomach."[15] He asserted that "Eating quince strengthens the heart, smartens the intellect (*qalb*), and emboldens the coward."[16] In a similar tradition, the Imām said: "In quince there is a quality not found in other fruits…. It emboldens the coward from the knowledge of the prophets, blessings be upon them all."[17] The Imām lauded the beautifying, strengthening, and sexually stimulating properties of quince, saying, "Quince helps the stomach, and strengthens the heart (*fu'ād*)" and "Quince beautifies the face, and strengthens the heart."[18] He also affirmed that "He who eats quince on an empty stomach improves the quality of his semen (*mā'*), and beautifies his face."[19]

Issues in Identification: It is the consensus that *safarjal* is Arabic for quince. During Dīnawarī's time, quince was grown abundantly in Arabia (*bilād al-ʻarab*).[20] The Andalusian Ibn Ḥabīb was familiar with many kinds of quince, some sweet, and some slightly acidic.[21] In all likelihood, the quince consumed by the Prophet and the Imāms was brought by caravan to Arabia from Isfahan in Persia.[22]

Properties and Uses: *Cydonia oblonga*, commonly known as quince, is nutritive, tonic, astringent, diuretic, vulnerary, antipyretic, expectorant, appetitive, thirst-quenching, galactalogue, antispasmodic, and cholagogue. Internally, it is used to treat coughs, rheumatism, gallbladder problems, flatulence, diarrhea, headache, and insomnia. It is also used to treat cancer, canker sores, dysentery, gonorrhea, aphthous affections, excoriations, gum problems, sore throat, and thrush. It is equally used to prevent dental cavities. Its juice is used to dissolve biliary calculi. A syrup from the fruit is used to treat patients with febrile diseases, and nausea. Quince is not used when the stomach or bowels are inflamed.

Scientific Studies: *Antioxidant, Antiulcerative Activity* In a study conducted by Shinshu University in Japan, the health benefits of Chinese quince (*Pseudocydonia sinensis*) and quince phenolics were evaluated for their antioxidant properties and anticulcerative activity in comparison with apple phenolics as a reference.[23] In the ethanol-induced gastric ulcer, preadministration of Chinese quince and quince phenolics suppressed the occurrence of gastric lesions in rats, whereas apple phenolics seemed to promote ulceration. The results showed that Chinese quince and quince phenolics might have health benefits by acting both in blood vessels and on the gastrointestinal tract.

Antidiarrheic Activity Research shows that preparations made from quince or its seed may provide minor relief from diarrhea and sore throat.[24]

Quince Notes

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Radish/*Fujl*

Family: Brassicaceae
Botanical Name: *Raphanus sativus*
Common Names: *English* radish; *French* Radis cultivé, Daïkon; *Spanish* Rábano; *German* Gartenrettich, Rettich, Radieschen; *Urdu/Unānī* Mooli, Turb; *Modern Standard Arabic* fujl
Safety Rating: Generally Safe Although radish is generally considered safe for most people, it can irritate the digestive track when consumed in large amounts. Radish should not be used in medicinal doses by people who have gallstones, nor should it be consumed by women who are pregnant or lactating.
Prophetic Prescription: Imām Ja'far al-Ṣādiq said, "Eat radish (*fujl*) for it contains three benefits: the leaves chase the wind, its flesh increases urine, and its roots cut phlegm."[1] He also said, "Radish (*fujl*) roots cut phlegm, its flesh promotes digestion, and its leaves increase the flow of urine."[2] As for Imām Muḥammad al-Taqī, he recommended the "comprehensive medication" along with a decoction of radish (*al-fujl*) for people suffering from stones.[3]
Issues in Identification: It is the consensus that *fujl* is Arabic for radish. As Nehmé notes, *Raphanus sativus* is known as *fujl zirā'ī* in Modern Standard Arabic.[4] According to Mandaville, *R. sativus* is occasionally found in eastern Arabia where it is known outside of cultivation as an escapee or weed around farms. It is known in the Saudi vernacular as *fujl* and *fujul*, though it is often pronounced as *fijal*. According to Ghazanfar, it is also known as *qusmī* in colloquial Arabic. Radish is commonly cultivated in Arabia and used as a salad vegetable.[5] It should be stressed, however, that "the small, round radishes that are now common in supermarkets are not of ancient origin."[6] The radishes described by the ancient Greeks were long-rooted, with fully developed seed pods (296).
Properties and Uses: *Raphanus sativus*, commonly known as radish, is a sweet, slightly pungent, tonic herb that is considered expectorant, antibacterial, antifungal, carminative, diuretic, resolvent, and astringent. Its seeds are used internally for indigestion, abdominal bloating, flatulence, acid reflux, diarrhea, and bronchitis.
Scientific Studies: *Anticarcinogenic Activity* The anticarcinogenic properties of radish have been the subject of several studies. According to a study of 150 gallbladder cancer patients and 153 controls with gallstone disease, a low consumption of vegetables increased the odds of developing gallbladder cancer while a high consumption of green leafy vegetables, including radish leaves, decreased the odds.[7] In another study of 64 newly diagnosed cases of gallbladder cancer and 101 cases of gallstones, a significant reduction in carcinogenesis was seen with the consumption of radish.[8] The carcinopreventive property of radish seems to be due to the presence of isothiocyanates, which inhibit the development of tumors in many experimental models.[9] In an extensive examination of sixty-two Egyptian foods and medicinal preparations for antimutagenic and anticarcinogenic activity, radish was found to inhibit 29 percent of mutagenicity produced in direct antimutagenic assay and to inhibit 89 percent of mutagenicity induced in host-mediated assay.[10]
Antidiabetic Activity Japanese radish sprouts also show potential to alleviate hyperglycemia in cases where diabetes is present and to serve in the primary prevention of diabetes mellitus.[11]
Anti-Hyperlipidemia In one study, the juice of black radish (*Raphus sativus* L. var. *niger*) showed a beneficial effect in alimentary hyperlipidemia.[12]

Radish Notes

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Raisin/*Zabīb*

Family: Vitaceae

Botanical Name: *Vitis vinifera*

Common Names: *English* Grape vine (source); raisin (dried fruit); *French* Vigne, Vigne noble; raisin (dried fruit); *Spanish* Vid, Parra; pasa, pasita (dried fruit); *German* Weinrebe; Rosine (dried fruit); *Urdu/Unānī* Angoor, Anab; Kishmish, Maweez, Zabeeb (dried fruit); *Modern Standard Arabic* zabīb

Safety Rating: Generally Safe With the exception of allergic individuals, raisins are generally considered to be safe for most people. When consumed in large quantities, however, raisins can cause diarrhea. Other potential side effects of excessive use include stomach upset, indigestion, nausea, vomiting, cough, dry mouth, sore throat, infections, headache, and muscular problems. Raisins should not be consumed in medicinal amounts by women who are pregnant or lactating.

Prophetic Prescription: The Messenger of Allāh asked Muslims to honor the raisin, saying, "Treat your aunts with honor: the palm tree and the raisin."[1] It is reported that he gave raisins to his companions, saying "Eat."[2] The Prophet is also reported to have said, "The condiment of bread is raisins."[3] The Messenger of Allāh advised that "Raisins (*zabīb*) and dates (*tamr*) should not be eaten together."[4]

The Messenger of Allāh recommended the consumption of raisins for a host of illnesses, saying, "Whoever eats twenty-one raisins at the beginning of the day, Allāh will repel from him every disease and illness."[5] The Prophet said, "Eat raisins (*zabīb*), but spit out the stones, for there is illness in the stones but healing in the flesh."[6] He said, "Eat raisins (*zabīb*). They brighten the face and are antiphlegmatic."[7] He also said, "Eat raisins for they extinguish bile, assuage phlegm, strengthen the nerves, drive away weariness, and beautify the heart."[8]

According to Imām ʻAlī ibn Abī Ṭālib, "Whoever eats twenty-one raisins every day, will never find anything upsetting in his body."[9] Imām Jaʻfar al-Ṣādiq said, "Consuming twenty-one red raisins every day on an empty stomach prevents every illness but death."[10] He also explained that "Raisins strengthen the nerves, removes pride, and freshens the breath."[11] In a similar tradition, the Imām said the same while specifically referencing the raisins from Ṭāʾif in the Arabian Peninsula.[12] The Imām also approved the use of raisins boiled in water with honey and cooked until two-thirds of it evaporates to treat a certain pain.[13]

Issues in Identification: It is the consensus that *zabīb* is Arabic for raisins. Bīrūnī says that raisins are also known as *kishmish*. During the time of the Prophet and the Imāms, the cities of Jerusalem and Damascus were famous for their raisins.[14] As Ghazanfar explains, *Vitis vinifera* is currently cultivated in Arabia in the lower hills.[15]

Properties and Uses: Raisins are high in glucose and are thus an excellent food in cases of debility and convalescence. Studies conducted at the University of California have shown that daily consumption of raisins can greatly reduce the acidity of the urine. The free use of raisins is valuable in combating chronic acidosis which generally results from the excessive consumption of meat and cereals. Raisins are also highly beneficial in the treatment of constipation, anemia and febrile conditions. Raisins are also considered an aphrodisiac.

Scientific Studies: *Antibacterial* Raisins have been found to contain several chemical compounds that may assist in fighting oral bacteria. In a laboratory, extracts from raisins were found to slow the growth of Streptococcus, the main bacteria behind tooth decay. Five chemicals in raisins — oleanolic, oleanolic, betulin, betulinic, and 5-(hydroxymethyl)-2-furfural — seem to be responsible for slowing the bacteria.[16] In addition, oleanic acid prevents *S. mutans* from sticking to tooth enamel.

Raisin Notes

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Rice/*Aruz*

Family: Poaceae
Botanical Name: *Oryza sativa*
Common Names: *English* Rice; *French* Riz; *Spanish* Arroz; *German* Reis; *Urdu/Unānī* Chawal, Chanwal, Birinj, Urz; *Modern Standard Arabic* aruz
Safety Rating: Generally Safe Rice is generally considered safe for most people in quantities normally consumed as food. Rice, however, should not be consumed in medicinal quantities by women who are pregnant or lactating.
Prophetic Prescription: According to the Messenger of Allāh, "The best of your food is meat, and rice."[1] There are also two apocryphal traditions which state that "Were it a man, it would be clement" and "Everything which the earth brings forth has both illness and healing, except rice; for it contains healing and no illness."[2]

According to Imām Ja'far al-Ṣādiq, rice is a wholesome and filling food. As he explained, "Nothing remains in one's inside from morning (*ghadwah*) until night except rice bread (*khubz al-aruz*)." The Imām also praise the medicinal values of rice, saying, "Rice is the best of medicine. It is cold, wholesome (*ṣaḥīḥ*), and free from sickness."[3] The Imām also stated that "Rice is the best of food. It enlarges the intestines. It removes hemorrhoids. We are very happy for the people of Iraq because they eat rice and unfertilized female dates (*bisr*) for they both enlarge the intestines and remove hemorrhoids."[4]

Imām Ja'far al-Ṣādiq recommended rice for stomach ailments of all kinds. He ordered his companions to "Feed rice bread (*khubz al-aruz*) to those of you who suffer from belly problems. Verily, there is nothing more beneficial for it burnishes the stomach and eradicates sickness."[5] Once, a man came to the Imām, complaining about pain in his belly. The Imām told him, "Take rice, wash it, dry it in the shade, ground it, and take a handful to eat every afternoon."[6] On another occasion, a man complained to the Imām that he had loose bowels. The Imām told him to "Take rice porridge (*sawīq al-aruz*) and to drink it."[7] On another occasion, the Imām, who was suffering from loose bowels, asked his servant to prepare rice for him.

A man came to Imām Ja'far al-Ṣādiq and said, "O son of the Messenger of Allāh, my daughter is wasting away and her body has become thin (*naḥīl*). Her illness has been protracted and she has a loose belly." The Imām replied, "What keeps you from eating this rice with the blessed fat? Allāh only made fat unlawful for the Banū Isra'īl [the Children of Israel] because of its great blessing in eating it, until Allāh removed what was in it. Perhaps you think it will be harmful because of the amount of treatment she has had?" The Imām described to him how to prepare the rice: cooking it and adding the fat from two kidneys. He said she should eat it when it was neither hot nor cold and she would be cured, Allāh, the Mighty and Sublime, willing. The man did as instructed and said, "By Allāh, there is no god but Him, she ate it only once and recovered."[8]

When the Imām was suffering from pain in the belly, he ordered his servant to boil some rice for him, and add sumac (*summāq*) on it.[9] When the Imām was suffering from loose bowels, he told his servant that "I was inspired in my illness to eat rice, and was commanded to eat it. So wash it and dry it, then roast it, crush it, and cook it, for I eat it with fat and Allāh will remove the pain from me."[10] According to several other traditions, the Imām used dried ground rice, whole cooked rice, or rice soup, to treat looseness of the bowels.[11]

When one of the Imām's companions complained to him of a loose belly, he ordered him to take rice porridge (*sawīq al-aruz*) and to drink it.[12] On one occasion, the Imāms said that "[Rice] porridge (*sawīq*) [*al-aruz*] creates flesh and strengthens the bone." He also added, "The feverish per-

son should be given [rice] porridge (*sawīq*) that has been washed three times for it removes fever, dries the bitterness and phleghm, and strengthens the legs."[13] On another occasion, he said, "When taken on an empty stomach, dry [rice] meal (*sawīq*) [*al-aruz*] extinguishes the temperature, and calms the bitterness. However, if it is moistened and drunk, it will not do so."[14] Finally, he also recommended that Muslims have [rice] porridge and dates as an early morning meal prior to fasting, saying, "The best of your breakfast (*suḥūr*) [during Ramaḍān] is [rice] porridge (*sawīq*) and dates (*tamr*)."[15]

Issues in Identification: It is the consensus that *al-aruz* is Arabic for rice. According to Dīnawarī, rice was one of the plants that was grown in Arabia.[16] While it is possible to grow rice in oases with abundant water, as is done in the Yemen, the vast majority of rice consumed by the Arabs during the time of the Prophet was brought to Arabia by caravans from southern Iraq. After the rise of Islām the cultivation of rice spread north to Nisibin, the southern shores of the Caspian sea, and into the valley of the Volga. Rice was also eventually grown in the Jordan valley in Palestine.

Properties and Uses: *Oryza sativa*, commonly known as rice, is a nutritive, soothing, tonic herb that is diuretic, reduces lactation, improves digestion, and controls sweating. Boiled in water until perfectly soft, rice is useful in cases of debilitated stomach or bowels, as well as diarrhea. Internally, its seeds are used for urinary dysfunction. Both the seeds and germinated seeds are used to treat excessive lactation. The germinated seeds are also used for poor appetite, indigestion, and abdominal discomfort and bloating. The rhizomes are used especially in tuberculosis and chronic pneumonia. In Chinese medicine, grains are often cooked with herbs to make a medicinal gruel. According to Bakhru, rice is beneficial for high blood pressure, digestive disorders, diarrhea in children, and skin inflammation.

Scientific Studies: *Demulcent Activity* According to Maude Grieve, a decoction of rice, commonly called rice water, is recommended in the Pharmacopeia of India as an excellent demulcent, refrigerant drink in febrile and inflammatory diseases, and in dysuria, and similar affections. It may be acidulated with lime-juice and sweetened with sugar. This may also be used as an enema in affections of the bowel.

Antianaphylatic Activity According to an animal study conducted by Wonkwang University in South Korea, the methanol extract of *Oryza sativa* L. subsp. *hsien Ting* possesses strong antianaphylactic activity by inhibition of histamine release from mast cells in vivo and in vitro.[17]

Anticancer Activity According to a study conducted by Chung Shan Medical University in Taiwan, *Oryza sativa* L. *indica* contains compounds that exert an inhibitory effect of cell invasion on various cancer cells.[18] According to an animal study conducted by the University of Leicester, brown rice appears to interfere with the development of tumors. In the study in question, the consumption of rice bran reduced numbers of intestinal adenomas by 51 percent compared to mice on a control diet. In parallel, dietary rice bran decreased intestinal hemorrhage in these mice. The low-fiber rice bran (30 percent in the diet) did not affect intestinal carcinogenesis, suggesting that the fibrous constituents of the bran mediate chemopreventive efficacy. The results suggest that rice bran might be beneficially evaluated as a putative chemopreventive intervention in humans with intestinal polyps.[19] According to a controlled animal study conducted by Gifu University in Japan, *Aspergillus oryzae* (the fungus used in fermented rice) contains a potent anticarcinogenic compound which is promising for human urinary bladder cancer.[20] According to an animal study conducted by Tokyo Noko University, pre-germinated brown rice suppresses hypercholesterolemia.[21]

According to a study conducted by Gifu University in Japan, these observations indicate for the first time that FBRA inhibits NMBA-induced esophageal tumor development in rats possibly through inhibition of cell proliferation in the post-initiation phase, and suggest that FBRA is a promising dietary agent for prevention of human esophageal cancer.[22]

According to a study conducted by Gifu University in Japan, administration of 2.5 and 5 percent FBRA in the diet continuously during initiation and post-initiation period significantly inhibits colon tumor development in rats. These results seem to confirm that rice components, particularly rice germ, play a key role in preventing cancer. As a result, researchers suggest that it is a promising dietary supplement for prevention of human colon cancer.[23]

According to a prospective case-control study of dietary risks for stomach cancer conducted by the Regional Cancer Center in India, the consumption of rice was observed to pose a higher risk. The risk was also high for those who consumed spicy food, chili, and high-temperature food.[24]

According to an animal study conducted by the Technical Research Institute of Snow Brand Milk Products in Japan, a diet containing 2 or 4 percent of rice bran hemicellulose significantly lowered the incidence of colon tumors.[25]

According to a study conducted by Aichi-Gakuin University in Japan, the anthocyanidins found in grape rinds and red rice is effective in suppressing cancerous cell growth.[26]

Rice Notes

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Rose/*Ward*

Family: Rosaceae

Botanical Name: *Rosa* spp.

Common Names: *English* Rose; *French* Rose; *Spanish* Rosa; *German* Rose; *Urdu/Unānī* Gulab, Gul-e Surkh, Ward; *Modern Standard Arabic* ward

Safety Rating: Generally Safe Although they can cause side effects such as nausea, vomiting, diarrhea, heartburn, stomach cramps, fatigue, headache, inability to sleep, and other side effects in sensitive individuals, rose hips are generally considered to be safe for most adults. In some people, inhaling rose hip dust can cause an allergic reaction. Rose hips should not be consumed by women who are pregnant or lactating. They should not be consumed by persons with diabetes, sickle-cell disease, glucose-6-phosphate dehydrogenase deficiency, or iron-related disorders such as hemochromatosis, thalassemia, or some types of anemia.

Prophetic Prescription: It is reported that the Messenger of Allāh said, "He who desires to smell my own perfume, let him smell the red rose."[1]

Issues in Identification: It is the consensus that the Arabic *ward* means rose. It is believed that roses originated in northern Persia. From there, the flower spread across Mesopotamia to Palestine and across Asia Minor to Greece, being brought to Italy by Greek colonists, and then spreading to the rest of southern Europe. Álvarez de Morales and Girón Irueste identify *ward* as *Rosa gallica* which, in the context of al-Andalus makes perfect sense. During the time of the Prophet, the type of rose cultivated by the Romans was *Rosa gallica*. If we limit ourselves to roses that are native to Palestine, the two most likely candidates for the Prophet's ward would be *Rosa can-*

ina and *Rosa phoenicia*. During the early centuries of Islām, there were rose gardens in many areas which provided the rose water that Arabs loved to use in their cookery.[2]

Properties and Uses: *Rosa canina*, known as dog rose, is an acidic, astringent, and tonic herb which is rich in vitamins. It is used internally to treat colds, influenza, minor infectious diseases, scurvy, diarrhea, and gastritis.

Rosa rugosa or Japanese rose is an aromatic, tonic herb, which stimulates the liver, improves circulation, and acts as an antidote in antimony poisoning. It is used internally to treat poor appetite and digestion, as well as menstrual complaints. It is combined with *Leonurus cardiaca* or *L. sibiricus* for excessive menstruation. The fruits are an excellent source of vitamin C.

Rosa gallica, known as the red rose, is an aromatic, tonic, mildly astringent herb that controls bacterial infections, promotes healing, and improves morale. Internally, the petals are used to treat colds, bronchial infections, gastritis, diarrhea, depression, and lethargy. In the United States, they used to be used to treat passive hemorrhages, excessive mucous, and bowel complaints. Rose petals are used to treat inflammations, circulatory congestion, sore throat, mouth sores, and menstrual problems. For the treatment of menstrual irregularity, rose petals are combined with *Asparagus racemosus*, as a tonic, and with *Hibiscus rosa-sinensis* or *Carthamus tinctorius*. Externally, rose hips are used as a poultice to treat ophthalmic diseases. They are also used in aromatherapy to counter depression, anxiety, and negative feelings. Rose hips are particularly high in vitamin C. They also contain carotenoid pigments, plant sterols, tocotrienols, and a very high level of anthocyanins, catechins, and other polyphenolics, which help protect against cancer and cardiovascular diseases.

Rosa damascena is considered cooling, mildly laxative, aphrodisiac, antipyretic, and cardiotonic. Fresh rose petals are used as a tonic, to treat bad breath, to improve the appetite, and relieve headaches and toothaches. They are also used to treat stomatitis, inflammation, as well as kidney, liver, and intestinal problems. Dried rose petals are used to give fragrance in perspiration.

Scientific Studies: *Anti-inflammatory Activity* According to an in vivo study conducted by Gazi University in Turkey, the ethanolic extract of *Rosa canina* L. fruits and the fractions prepared from the fruits was shown to possess significant inhibitory activity against inflammatory models and on a pain model based on the inhibition of p-benzoquinone-induced writhing in mice.[3]

According to a double-blind, placebo-controlled, randomized, crossover study of 112 patients with osteoarthritis conducted by the Institute for Clinical Research in Denmark, treatment of 5 g daily of Hyben Vital produced significantly more improvement for pain and stiffness than placebo. After the first three months of active treatment, 66 percent of patients showed improvement as opposed to 36 percent with those on placebo, indicating that Hyben Vital, a standardized powder of a subspecies of *Rosa canina* fruits, reduces the symptoms of osteoarthritis.[4]

According to an animal trial conducted by Yonsei University in South Korea, *Rosa* x *hybrida* extract clearly exhibited inhibitory effects against acute and subacute inflammation by oral administration. *Rosa* x *hybrida* extract also showed an analgesic effect. As the researchers conclude, these results support the use of *Rosa* x *hybrida* in relieving inflammatory pain and provides insight into the development of new agents for treating inflammatory diseases.[5]

According to an animal study conducted by Hanyang University in Korea, the administration of rosmarinic acid to mice with induced arthritis dramatically reduced the arthritic index and number of affected paws, suppressing synovitis, showing benefit for treatment of rheumatoid arthritis in clinical settings.[6]

According to a study conducted by the Danish Institute of Agricultural Sciences, the dried and milled fruits of *Rosa canina* contain a galactolipid with inhibitory effects on chemotaxis of human peripheral blood neutrophils in vitro. As researchers explain, the presence of galactolipid 1 in rose hips may explain the clinically observed anti-inflammatory properties of rose hip herbal remedies.[7]

According to a study conducted by Sangji University in Korea, the roots of *Rosa rugosa* contain anti-inflammatory triterpenoids which are responsible for the anti-inflammatory and antinociceptive action of *Rosa rugosa* roots.[8]

Cardioprotective Activity According to an animal study conducted by Yonsei University in Korea, *Rosa* x *hybrida* flower significantly increased antioxidant enzyme activity and HDL-cholesterol, as well as decreasing malondialdehyde, which may reduce the risk of inflammatory and heart disease.[9]

Anti-HIV Activity In a study conducted by Nankai University in China, 18 medicinal herbs traditionally used in China were screened for their ability to inhibit HIV in vitro. Of all the herbs studies, the ethanol precipitate of the aqueous extract of *Rosa rugosa* showed the strongest inhibition.[10]

According to a study conducted by MRC Collaborative Centre in the United Kingdom, water and methanol extracts of *Rosa damascena* exhibited moderate anti–HIV activity. One compound was shown to reduce the maturation of infectious progeny virus, while three other compounds appear to inhibit HIV infection.[11]

Antioxidative Activity In a study of Turkish medicinal plants conducted by Ataturk University in Turkey, the aqueous extract of *Rosa pimpinellifolia* was shown to have one of the highest peroxidation inhibition activity.[12]

According to a study conducted by Toyama Medical and Pharmaceutical University in Japan, compounds from *Rosa rugosa* were shown to possess marked and dose-dependent inhibitory effects on lipid peroxidation.[13]

According to a 5-week randomized, placebo-controlled, single-blind trial of 36 young, healthy, and non-smoking individuals conducted by North-West University in South Africa, *Rosa roxburghii* supplementation significantly increased plasma antioxidant capacity. These findings support the beneficial properties linked to *Rosa roxburghii* as a dietary supplement that can enhance antioxidant status.[14]

Antiulcer Activity In an in-vivo study conducted by Gazi University in Turkey, five herbal medicines used as Turkey as gastroprotective drugs were assessed for antiulcer activity. Among other ingredients, the crude drugs contained the fresh fruit of *Rosa canina*. Prepared according to traditional indications in experimental conditions, all extracts exhibited statistically significant gastroprotective effect, with *Rosa canina* showing 100 percent effectiveness. In fact, at the concentration under study, both crude drugs were more effective than the reference compound misoprostol.[15]

Antibacterial Activity According to a study conducted by The Robert Gordon University in the United Kingdom, *Rosa canina* is active against one bacterial species.[16]

Antiviral Activity In a study conducted by the University of British Columbia, one hundred methanolic plant extracts were screened for antiviral activity against seven viruses. The extract of *Rosa nutkana* was found to be very active against an enteric coronavirus.[17]

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Rue/*Sadhāb*

Family: Rutaceae

Botanical Name: *Ruta chalepensis*

Common Names: *English* Aleppo rue, Eastern rue, Egyptian rue, Fringed rue; *French* Rue d'Alep,

Rue ailée fétide; *Spanish* Ruda; *German* Raute; *Urdu/Unānī* Sudab; *Modern Standard Arabic* sadhāb

Botanical Name: *Ruta graveolens*

Common Names: *English* Common rue, Herb of grace; *French* Rue des jardins, Rue officinale, Rue fétide; *Spanish* Ruda; *German* Gartenraute, Raute; *Urdu/Unānī* Sudab; *Modern Standard Arabic* fayjān, sadhāb

Safety Rating: Dangerous to Deadly Excessive intake of rue, particularly in its fresh form, affects the central nervous system and may prove fatal. In animal experiments, rue causes strong uterine stimulation, and the extract acts as an abortive agent in large doses.[1] Rue is toxic to both embryo and fetus. Due to its spasmolytic and abortifacient properties, the herb is never administered to women who are pregnant or lactating. The abortifacient quality of rue is caused by its toxicity. Using rue to terminate unplanned pregnancies is a perilous practice which can cause death, not only to the baby, but to the mother herself. Rue should not be used internally by small children, the elderly, nor by patients suffering from cardiac or kidney ailments. Rue should not be used while taking medications to lower blood pressure as it may increase their effects. When applied externally to the skin or handled in the garden, rue can cause serious photodermatatis as well as contact dermatitis in sensitive people.

Symptoms of rue poisoning include retching, vomiting, violent pain in the stomach, headache, cerebral oppression and fullness, heat flushes, uncertain locomotion, somnolence, prostration, feeble pulse, at first rapid, then slow, coldness and twitching of the extremities, and frequent desire to pass urine, which is strongly impregnated with the peculiar odor of rue. German health authorities have concluded that neither rue nor any of its preparations should be utilized in medicine as it has an unfavorable risk-benefit ratio.[2] Rue should only be taken medicinally under expert supervision.

Prophetic Prescription: Imām Muḥammad al-Ṭaqī used to prescribe the "comprehensive medication" with rue water for people suffering from stones.[3] It is also reported that a few drops of rue, cooked with olive oil, helps subside throbbing ear pain.[4]

Issues in Identification: According to Hans Wehr, *sadhāb* is Arabic for rue. For Álvarez Morales and Girón Irueste, the term refers to *Ruta graveolens*.[5] Bīrūnī says that *kuft fayjān* is rue while Said identifies it as *Nasturtium indicum* (Indian cress). Dīnawarī also says that *sadhāb* is known as *fayjān*.[6] As Nehmé explains, ruta is *sadhāb* and *fayjān*; *Ruta chalepensis*, known as Aleppo rue or fringed rue, is known as *sadhāb ḥalab* or *khuft*.[7]

Ruta chalepensis is the type of rue commonly known in Arab countries as *sadhāb*, and which occurs as a ruderal in southwestern Saudi Arabia. According to Ghazanfar, the distribution of *R. chalepensis* ranges from the Mediterranean region to Pakistan, Somalia, and Ethiopia. It is found throughout Arabia, in gravelly and rocky places. In Omani, Saudi Arabian, and Yemeni Arabic, the plant is known as *saḍab*, *sadhāb*, *shadhab*, and *shathāb*.[8] Although both *R. chalepensis* and *R. graveolens* could grow in parts of Arabia, the latter is more temperate and would thrive better in the Mediterranean zone.

Properties and Uses: *Ruta graveolens* is a bitter, pungent, warming herb that stimulates the uterus, relaxes spasms, improves digestion, increases perspiration, and strengthens capillaries. Rue is considered irritant, detersive, expectorant, calorific, resolvent, antiseptic, antispasmodic, narcotic, hypnotic, anodyne, emetic, emmenagogue, ebolic, deobstruent, carminative, desiccative, astringent, antispasmodic, stimulant, alterative, aphrodisiac, lactagogue, anthelmintic, and, in large quantities, abortifacient and toxic.

Internally, it is used in small doses for menstrual problems, colic, epilepsy, rheumatism, nervous headaches, heart palpitations, high blood pressure, to help harden bones and teeth, and to expel intestinal parasites. Rue is also used to treat mental illnesses, hysteria, epilepsy, hemorrhoids, intermittent fevers, colic, retention of urine, hiccup, rheumatism, calculi or ureter, gallstones, jaundice, dysmenorrheal, neuralgia, lumbago, and as an ointment for baldness. It is also used to treat arthritis, joint disorders, lack of menstruation, menstrual pain, muscle disorders, nervousness, spasms, sports injuries, sprains and strains, and to promote lactation in breast-feeding women. The powdered seeds are an excellent vermifuge, particularly efficient in expelling tapeworms. Externally, rue is used in the treatment of strained eyes.

Scientific Studies: *Anti-inflammatory, Vasorelaxant, Antihypertensive, Bone-Hardening, Cardioregulating, and Antispasmodic Activity* Studies have confirmed that rue is anti-inflammatory[9] and a vasorelaxant.[10] The most important component in rue is a crystalline body called rutin. According to the United States Department of Agriculture, rutin is very effective in treating high blood pressure, and it also helps to harden the bones and teeth. It also is useful for heart palpitations. Its oil and alkaloids are antispasmodic which explains its use in the treatment of nervous digestion and colic.

Antitumor Activity In a study conducted by the Danish University of Pharmaceutical sciences, in Copenhagen, Denmark, extract of *Ruta graveolens* exhibited moderate inhibition of acetylcholinesterase enzyme.[11] In a study conducted by the Amala Cancer Research Centre in India, an extract of *R. graveolens* was found to be cytotoxic to Dalton's lymphoma ascites, Ehrlich ascites carcinoma and L929 cells in culture, as well as increasing the lifespan of tumor-bearing animals. The extract further decreased solid tumors from developing. A homeopathic preparation of *R. graveolens* was equally effective. Neither was effective, however, for reducing already developed tumors. The *R. graveolens* extract was found to scavenge hydroxyl radicals and inhibit lipid peroxidation at low concentrations. At higher concentrations, however, the extract acted as a prooxidant as inhibition of lipid peroxidation and scavenging of hydroxyl radicals was minimal. These data indicates that the prooxidant activity of *R. graveolens* may be responsible for the cytocidal action of the extract, and its ability to produce tumor reduction.[12]

Antimicrobial Activity A study conducted by the Bulgaria Academy of Sciences confirmed that the methanol, petroleum ether, ethyl acetate and water-methanol extracts of *Ruta graveolens* possess antimicrobial and cytotoxic activities.[13]

Antifertility Activity In an animal study conducted by the Universidad Nacional Mayor de San Marcos in Peru, the oral administration of *Ruta graveolens* extract was shown to interfere with preimplantation development and embryo transport.[14] According to an animal study, the chloroform extracts of the root, stem and leaf of *R. graveolens* shows significant anti-fertility activity in rats when administered intragastrically on days 1–10 post-coitum.[15] In another animal study, *R. graveolens* was shown to inhibit pregnancy in 50–60 percent of rats.[16]

Antinociceptive Activity According to a study conducted by Jordan University of Science and Technology, *Ruta graveolens* possesses antinociceptive effects. This data affirms the traditional use of the plants for painful and inflammatory conditions.[17]

Rue Notes

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Saffron / *Za'farān*

Family: Iridaceae

Botanical Name: *Crocus sativus*

Common Names: *English* saffron, crocus; *French* Safran, Safran cultivé; *Spanish* Azafrán; *German* Echter safran; *Urdu/Unānī* Zafran, Kurkum, Kesar; *Modern Standard Arabic* za'farān

Safety Rating: Generally Safe to Dangerous *Crocus sativus* is generally considered to be safe for most adults when used as a spice and in medicinal doses. Besides potential allergic reactions, side effects may include anxiety, drowsiness, change in appetite, and headache. In large doses, *Crocus sativus* is poisonous, causing yellowing of the skin, eyes, and mucous membranes, vomiting, dizziness, bloody diarrhea, bleeding from the nose, lips, and eyelids, as well as numbness and other serious side effects. The herb should not be ingested by people suffering from bipolar disease. Since the plant is abortifacient and poisonous, it

should not be consumed in any quantity by women who are pregnant or lactating

Saffron is prone to adulteration with safflower, coreopsis, marigold, turmeric rhizomes, corn stigma, paprika, and other powders used as diluting fillers. Different saffron grades are also mixed and mislabeled. Since saffron is worth its weight in gold, if it is inexpensive, it is fake. The highest grade saffron is from Kashmir. The Iranian variety is cheaper. The so-called saffron from Mexico is actually marigold or safflower.

Prophetic Prescription: According to Imām ʻAlī al-Naqī, "The best thing for quartan fever is to eat sweet flummery and a lot of saffron on the day the fever occurs, and not to eat anything else on that day."[1]

Issues in Identification: Bīrūnī gives many names for the plant, including *zaʻfurān*, *zaʻfarān*, *jādī*, *jisād*, *jayhumān*, *rādin*, *rayhaqān*, *raʻbal*, *ʻabīr*, and *ramhuqān*, all of which are identified by Said as *Crocus sativus*. Saffron was cultivated in Darband and Isfahan in the 10th century. According to Chinese sources, the plant was spread there by the Muslims. The saffron employed by the Imāms was likely of Persian provenance.

Properties and Uses: *Crocus sativus*, commonly known as saffron, is a pungent, bittersweet herb that improves digestion, increases perspiration, stimulates circulation and menstruation, and reduces high blood pressure. It is stomachic, emmenagogue, diaphoretic, sedative, aphrodisiac, slightly anodyne, antispasmodic, resolvent, detersive, and carminative. It is used for coughs, whooping cough, asthma, flatulent colic, insomnia, measles, depression, and conjunctivitis. It is also said to benefit amenorrhoea, dysmenorrhea, chlorosis, hysteria, and suppression of the lochial discharge. It is also used for depression and menstrual disorders. Externally, it is used in compounds for rheumatism and neuralgic pains, as well as for dry skin.

Scientific Studies: *Neuroprotective Activity* In an animal trial conducted by Fukuoka University in Japan, *Crocus sativus* was confirmed to possess neuroprotective properties.[2]

Antidepressant Activity In a double-randomized 8-week human trial on forty depressed outpatients conducted by the University of Tehran in Iran, saffron was shown to be equally effective as fluoxetine in the treatment of mild to moderate depression.[3]

In a 6-week double-blind, placebo-controlled and randomized human trial of forty patients with major depression conducted by Arak University of Medical Sciences, and the Psychiatric Research Center of Roozbeh Hospital in Iran, petals of *Crocus sativus* produced a significantly better outcome on Hamilton Depression Rating Scale than placebo, indicating the efficacy of *Crocus sativus* petals in the treatment of mild to moderate depression.[4] (It should be noted that the petals of *C. sativus* are not usually used for culinary or medicinal purposes; rather, the stigmas of the flower are used.)

Tehran University of Medical Sciences conducted a 6-week pilot, double-blind, single-center, randomized human trial of thirty adult outpatients meeting the DSM IV for major depression, and scoring at least 18 on the Hamilton Rating Scale for Depression. They found that 30 mg/day of saffron was found to be similar to 100 mg/day of imipramine in the treatment of mild to moderate depression.[5]

Antioxidative Activity In a study conducted by the University of Patras in Greece, *Crocus sativus* stigmas were shown to possess good antioxidant properties, higher than those of tomatoes and carrots, which inhibited Abeta fibriollogenesis in a concentration and time-dependent manner.[6]

Respiratory Tract Relaxing Activity In a controlled animal trial conducted by the Mashhad University of Medical Sciences in Iran, the potent relaxant effects of aqueous-ethanolic extracts of *Crocus sativus* were confirmed.[7]

Memory-Enhancing Activity In a study conducted by the University of Thessaly in Greece, the effects of extracts of *Crocus sativus* on memory were investigated in the rat by using the object recognition and the step-through passive avoidance task. In the first study, post-training administration of saffron extract successfully counteracted extinction of recognition memory in the normal rat, suggesting that saffron extract modulates storage and/or retrieval of information. In a subsequent study, pre-training treatment with *C. sativus* extract significantly antagonized the scopolamine-induced performance deficits in the step-through passive avoidance test. These results support and extend prior findings about the implication of *C. sativus* extract in learning and memory mechanisms.[8]

According to the University of Tokyo, recent behavioral and electrophysiological studies demonstrate that saffron extract affect learning and memory in experiments with animals. Studies have shown that saffron extract improves ethanol-induced impairments of learning behaviors in mice, and prevents ethanol-induced inhibition of hippocampal long-term potentiation, a form of activity-dependent synaptic plasticity that may underlie learning and memory. This effect of

saffron extract is attributed to crocin (crocetin digentiobiose ester), but not crocetin. The study concludes that saffron extract or its active constituents, crocetin and crocin, could be useful as a treatment for neurodegenerative disorders accompanying memory impairment.[9]

Cholesterol-Lowering Activity In a 10-day animal study conducted by the China Pharmaceutical University, the hypolipidemic mechanism of crocin, an active ingredient in *Crocus sativus*, significantly reduced serum triglyceride, total cholesterol, low density lipoprotein (LDL) cholesterol and very low density lipoprotein (VLDL) cholesterol levels in the daily dose range of 25 to 100 mg/kg. Results of the modified fat-loading method indicated that crocin inhibited the absorption of fat and cholesterol and this inhibition is closely related to the hydrolysis of fat. Although crocin did not directly block the absorption of cholesterol, it could selectively inhibit the activity of pancreatic lipase as a competitive inhibitor. These findings suggest that crocin yielded its hypolipidemic effect by inhibiting pancreatic lipase, leading to the malabsorption of fat and cholesterol.[10]

Anticonvulsant Activity In a study conducted by Mashhad University of Medical Sciences in Iran, the effects of safranal, an active constituent of *Crocus sativus* L. stigmas, were studied on seizures induced by pentylenetetrazol. Protection against generalized tonic-clonic seizures was 30 percent, 100 percent and 100 percent and mortality protection was 40 percent, 100 percent and 100 percent. These results indicate that safranal could exert anticonvulsant activity.[11]

Antigenotoxic, Antioxidant, and Chemopreventive Activity In a study conducted by the University of Madras in India, the chemoprotective potential of saffron was tested against the genotoxicity of three well-known antitumor drugs: cisplatin, cyclophosphamide, and mitomycin-C. Three doses of saffron (20, 40 and 80 mg/kg b.w.) were orally administered to mice for five consecutive days prior to the administration of antitumor drugs under investigation. Pre-treatment with saffron significantly inhibited antitumor drugs induced cellular DNA damage as revealed by decreased comet tail length, tail moment and percent DNA in the tail. These findings, together with previous results, suggest a potential role for saffron as an antigenotoxic, antioxidant and chemopreventive agent and could be used as an adjuvant in chemotherapeutic applications.[12]

Antioxidative Activity In a study conducted by Aristotle University of Thessaloniki in Greece, saffron showed a high radical scavenging activity, supporting its use in functional foods, drinks with antioxidative activity, in pharmaceutical and cosmetic preparations for their antioxidative activity, and probably for their antiaging activity.[13]

In a study conducted by Fukuoka University in Japan, a pharmacologically active component of *Crocus sativus* was shown to have greater antioxidant effects than alpha-tocopherol at the same concentration. These results, together with previous data, suggest that crocin is a unique and potent antioxidant that combats oxidative stress in neurons.[14]

Anticancer Activity According to the Chittaranjan National Cancer Institute in India, pharmacological studies have demonstrated that *Crocus sativus* L. possesses many health-promoting properties including radical scavenging, antimutagenic and immuno-modulating effects. In an animal study, an aqueous infusion of saffron was shown to prevent chemically induced skin carcinogenesis.[15]

In a study conducted by the Amala Cancer Research Centre in India, the topical application of *Nigella sativa* and *Crocus sativus* extracts inhibited two-stage initiation/promotion of skin carcinogenesis in mice. Intraperitoneal administration of *Nigella sativa* and oral administration of *Crocus sativus* for 30 restricted tumor incidence to 33.3 percent and 10 percent, respectively.[16]

In a study conducted by the Amala Cancer Research Centre, in Kerala, India, the oral administration of saffron to tumor-bearing mice increased their life spans by 111 percent, 83.5 percent, and 112.5 percent respectively. These results indicate the potential use of saffron as an anticancer agent.[17]

In a review produced by the National Institute of Pediatrics in Mexico reports that a growing body of research has demonstrated that saffron extract itself and its main constituents, the carotenoids, possess chemopreventive properties against cancer.[18] According to an in-vitro study, crocin, safranal, and picrocrocin from saffron inhibits the growth of human cancer cells.[19]

Antihypertensive Activity In an animal trial conducted by Mashhad University of Medical Sciences in Iran, aqueous and ethanol extracts of *Crocus sativus* petals were shown to reduce blood pressure in a dose-dependent manner.[20]

Antinociceptive and Anti-inflammatory Activity In an animal trial conducted by Mashhad University of Medical Sciences in Iran, the aqueous and ethanolic extracts of saffron stigma and petal showed an antinociceptive effect, as well as acute and/or chronic anti-inflammatory activity.[21]

Vasodilatory Activity In a study conducted by

Texas A&M University College of Medicine, crocin analogs isolated from *Crocus sativus* L. were found to significantly increase the blood flow in the retina and choroid and to facilitate retinal function recovery. Increased blood flow due to vasodilation presumably improves oxygenation and nutrient supply of retinal structures. These results indicated that crocin analogs could be used to treat ischemic retinopathy and/or age-related macular degeneration.[22]

Anti-Premature Ejaculation Activity In Germany, a patent has been granted for a combination of saffron, quinine, and opium, for the treatment of premature ejaculation.[23]

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Senna/*Sanā*

Family: Fabaceae

Botanical Name: *Cassia angustifolia*

Common Names: *English* Indian senna, Tinnevelly senna plant, Alexandrian senna; *French* Casse trompeuse, Casse à feuilles étroites; *Spanish* Sen; *German* Senneskassie; *Urdu/Unānī* Sana, Sanna-e Makki; *Modern Standard Arabic* sanā, sanā ḥindī, sanā makkī, sanā ḥijāzī

Safety Rating: Generally Safe When used as directed for short periods, senna is generally considered safe for most adults and children over the age of two. Some of the side effects of senna include stomach discomfort, cramps, and diarrhea. Senna should not be used for more than two weeks as it may cause abnormal bowel function and may lead to dependency on laxatives. Furthermore, long-term use can cause low electrolytes which can cause heart problems, muscle weakness, liver damage, and other adverse effects. Senna should not be used by pregnant women unless advised to do so by their physician. People with stomach or bowel disorders, low electrolytes, and hemorrhoids should also avoid using the herb,

as should people who are dehydrated or suffering from diarrhea or loose stools.

Prophetic Prescription: The Prophet Muḥammad said, "Senna (*sanā*) and dill (*sannūt*) are for you, for there is a cure in these two for every disease except death."[1] He said, "If there was anything that could cure death, that cure would be senna."[2] He said, "If there is any remedy against death, then it is senna, the gladdening one, the gentle one."[3] He said, "There are three things which are a cure for every disease except death"[4] (senna, dill, and a third cure not identified in the tradition). As for the meaning of *sannūt*, scholars are divided on the issue, some suggesting that it means honey, a mixture of Meccan fat, a seed similar to cumin or dates.[5] They were evidently unaware of the Prophet's saying that: *Al-thuffā' al-ḥurf wa al-sannūt shbit* or "*Thuffā'* is garden-cress and *sannūt* is dill."[6]

The Messenger of Allāh once inquired from Asmā' bint Amīs what she used to keep her in good health. She replied, "I drink warm milk." The Prophet said, "But this is very hot for the body." She replied, "I also use senna herbs." On hearing this, the Prophet said, "If there was any cure in that, it would have been the senna (*sanā*)." The Prophet asked 'Ā'ishah "What do you use for a purgative?" She replied, "I use Euphorbia." The Prophet responded that "It is too hot and strong. I myself use senna seed (*sanā*)."[7] According to Ibn Ḥabīb, the Prophet used to cook senna in olive oil before administering it. He also relates that Ḥārith ibn Kaladah, the famous herbalist who lived during the time of the Prophet, used to cook senna with olive oil and use it to treat phlegm and back pain.[8] According to Imām Ja'far al-Ṣādiq,

> If people knew what was in senna, they would pay double its weight in gold. It is a protection against *Tinaea versicolor* (*al-bahaq*), *psoriasis* (*baraṣ*), leprosy (*al-judhām*), madness, semi-paralysis (*fālij*), and facial paralysis (*luqwah*).[9] It is taken with seedless dried red raisins. Add Kabūlī embelic myrobalan to it, along with the same portion of the yellow and the black one. The quantity of three dirhams is taken on an empty stomach, and similarly when you go to sleep. It is the best of medicine.[10]

Issues in Identification: Bīrūnī and Dīnawarī speak of *sanā makkī* which Said identifies as the leaves of senna, including at least two possible varieties (*Cassia angustifolia*, *Cassia acutifolia*, and *Cassia oborata*).[11] Ibn al-Jawziyyah claims that *sanna* means honey, a variety of cumin called *kammūn karmanī*, the essence of fat which accumulates as fine dark lines on top of ghee, a fruit similar to a date or even a variety of fennel called *rāzyanj* or *shomār*.[12]

According to Ghazanfar, *Cassia senna* (also known as *Cassia alexandrina*, *Senna alexandrina*, *Cassia angustifolia*) is called *sanā*, *sannā makkī*, *senā*, and *sennā makkī* in Arabic. Barr, however, holds that *sanā* and *sanā makkī* refer to *Cassia cacutifolia* while *sanā al-hindī* refers to *Cassia angustifolia*.[13] The plant is native to Arabia, Somalia, Sind, and the Punjab. It is found in the Western and southern regions of Saudi Arabia.[14]

Properties and Uses: Senna is a sweet, cooling, laxative herb with antibacterial effects. A cathartic and cholagogue, it acts on nearly the entire intestinal tract, especially the colon, increasing peristalsis and intestinal secretions, producing copious stools in four to six hours, with griping and flatulence. The griping and flatulent qualities of senna are often lessened by addition of carminatives like ginger, coriander, peppermint, tamarind, fennel, or Epsom salt. While large doses cause vomiting, it never results in poisoning. Senna should never be administered to children under 12, women who are pregnant or lactating, people suffering from inflammatory intestinal illness (Crohn's disease, ulcerative colitis, appendicitis, abdominal pains of unknown cause).[15] Senna is also considered a blood purifier, anthelmintic, and detersive. Wild senna (*Cassia marilandica*), which is found in North America, is milder than its cousin from the Old World. Senna is used also used to treat fever, tumors, and to promote menstruation. Externally, senna is used for skin afflictions such as burns, psoriasis, and boils.

Scientific Studies: *Peristaltic Stimulating Activity* Senna contains a number of chemical substances that stimulate peristaltic movements in the lower bowel, thus acting as a laxative. While it is good for constipation, it must be used with great care in its natural form as it is a cathartic drug and its dosage is difficult to adjust. Since it can be damaging in cases of spastic constipation or colitis, causing severe nausea and pain, the use of standardized over the counter products is recommended. Because of the presence of anthraquinones, senna species are used as the primary ingredient in certain commercial stimulant laxatives. It is also the primary ingredient found in most "dieter's tea." Even with standardized preparations, habitual dosing should be avoided as excessive colonic irritation can occur. The German Ministry of Health warns that chronic abuse may result in electrolyte disturbances due to potassium loss may interfere with or potentiate the activity of cardiac glycosides.[16]

Senna Notes

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9. As Aḥmad al-Sharīf has shown, ancient Arabic medical terms were confused in pre–Islamic times, and this confusion has continued to the present. I agree with Sharīf that *judhām* refers to leprosy, that black *bahaq* refers to *Tinaea versicolor*, that black *baras* refers to psoriasis, that white *baraṣ* refers predominantly to vitiligo, and occasionally to leprosy, and that both white *bahaq* and *wadah* refer to vitiligo. See: Sharīf A. *Judhām*, *baraṣ*, *wadah*, *bahaq*, and *quwaba'*: a study of terms and concepts in *al-Qanūn fī al-ṭibb* of Ibn Sīnā. *JISHIM* 2006; 5: 30–39. Like many Arabs who are fond of used shortened forms, the Imāms did not specify the type *baraṣ* or *bahaq*, as the particular case is usually evident based on context. In this case, *baraṣ* could refer to psoriasis or vitiligo.
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Sesame/*Simsim*

Family: Pedaliaceae
Botanical Name: *Sesamum indicum*
Common Names: *English* Sesame, benne, gingili; *French* sésame; *Spanish* sésamo; *German* Sesam; *Urdu/Unānī* Til, Kunjad, Simsim; *Modern Standard Arabic* simsim

Safety Rating: Generally Safe Sesame seeds are generally considered to be safe for most people. They do, however, produce an allergic reaction in a small percentage of the population. They are associated with nut allergy in children, and may be the main allergen in some cases.

Prophetic Prescription: It is reported that the Messenger of Allāh gave some sesame seeds (*simsim*) and some dates (*tamr*) to one of his companions. He consumed some of them and made a supplication.[1] According to Ibn Ṭūlūn, Imām Muḥammad al-Bāqir and Imām Ja'far al-Ṣādiq said that the Prophet used to apply sesame seed oil.[2] According to Ibn Ḥabīb, the Prophet used to apply sesame (*simsim*) (oil) inside his nose.[3] The Imāms often used sesame seed oil in their medicine.

Issues in Identification: It is the consensus that the Arabic *sismim* means sesame.

Properties and Uses: Sesame is a sweet, warming, soothing herb that fortifies the bones and teeth, moisturizes dry tissues, relaxes spasms, is mildly laxative, and has a tonic effect on the liver and kidneys. Sesame seeds are astringent, diuretic, emollient, galactogogue, lenitive, and nutritive. Sesame seeds are used internally to treat premature hair loss and graying, convalescence, chronic dry constipation, tooth decay, osteoporosis, stiff joints, dry cough, and symptoms such as tinnitus, poor vision, dizziness, headache, infantile cholera, diarrhea, dysentery, bladder troubles and excess mucus. The leaves are used to treat cystitis. The oil is used as a laxative, to promote menstruation, and to treat constipation in the elderly. The root is used in a decoction to treat asthma and coughs, and the seeds have a marked ability to increase maternal milk production. Externally, sesame seed oil is used to treat hemorrhoids. Mixed with lime water, the oil is used to treat burns, boils, and ulcers.

Scientific Studies: *Antitumor Activity* According to an animal study conducted by Jinan University in China, the alcohol extract from *Sesamum indicum* flower showed an obvious antitumor effect.[4]

Hypoglycemic Activity According to an animal study conducted by Shizuoka University in Japan, the hot-water extract from defatted *Sesamum indicum* seeds reduced plasma glucose concentration caused perhaps by delayed glucose absorption.[5]

Sesame Notes

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Sneezewort/*Kundus*

Family: Compositae/Asteraceae

Botanical Name: *Achillea fragrantissima*
Common Names: *English* Lavender cotton; *French* Garda-robe, aurone gemelle, santoline; *Spanish* Guardaroba, santolina; *German* Cypressengarbe; *Urdu/Unānī*; *Modern Standard Arabic* qayṣūm

Botanical Name: *Achillea millefolium*
Common Names: *English* Yarrow; *French* Achilée, herbe à la copure; *Spanish* Cientoenrama, flor de pluma, maquilea, milenrama, mil hojas, hierba de las heridas, hierba del carpintero, hierba de aquiles; *German* Garbe, schafgarbe; *Urdu/Unānī* Biranjaasif, Gomadar; *Modern Standard Arabic* Huzambil

Botanical Name: *Achillea ptarmica*
Common Names: *English* Sneezewort; *French* Achillée sternutatoire; *Spanish* Botón de plata; *German* Sumpfschafgarbe, Bertram-Schafgarbe, Deutscher Weißer Dorant, Sumpf-Garbe; *Urdu/Unānī* Qaisoom; *Modern Standard Arabic* kundus

Safety Rating: Generally Safe to Dangerous *Achillea millefolium* is generally considered safe when used in moderation as a carminative and diaphoretic. Although *Achillea millefolium* is not generally considered toxic, it is an emmenagogue and an abortive. As such, its volatile oil must not be used during pregnancy. The most commonly reported side effect of *Achillea millefolium* is contact dermatitis. It can also cause headache and vertigo in large doses. Although symptoms are generally slow to develop, *Achillea ptarmica* is poisonous to cattle, sheep, and horses. Symptoms include fever, rapid pulse, breathing difficulties, weight loss, drooling, spasms, loss of muscular control, and convulsions.

Prophetic Prescription: A man complained to Imām Jaʻfar al-Ṣādiq of the common cold. The Imām said, "It is one of the workings of Allāh and one of the armies of Allāh. Allāh has sent it to an illness in your body to remove it. When it has been removed, you must take one *daniq* [⅛ of a *dirham*] weight of fennel flower, and half a *daniq* weight of sneezewort (*kundus*). Grind it and inhale it all. It will get rid of the cold. If it is possible that you not treat it with something else then do that, for it [the cold] has many benefits."[1]

Issues in Identification: *Achillea ptarmica* or sneezewort, which is known as *kundus* in Arabic, should not be confused with *Achillea millefolium* or yarrow, which is known as *huzambil* in Arabic, or with *Achillea fragrantissima*, which is known as *qayṣūm*. However, since the three flowers belong to the same family, we have commented upon all of them in the sections below. In India, *nakk chhikni* or *Centipeda orbicularis* is also known as sneezewort, and should not be confused with *Achillea ptarmica*.

According to Mandaville, *Achillea fragrantissima* is the most powerfully fragrant plant in eastern Arabia. Although not widespread, it is found in silt-floored basins, usually in rocky country. The sedentary Arabs use it to treat renal calculi, high blood sugar, diabetes, and for urinary tract infections. The Bedouin use the leaves to treat diabetes, chest, stomach, and kidney problems, muscular rheumatism, cough, snake and scorpion bites. They also use *Achillea conferta*, called *qūysī mah*, and *Achillea santolina* for practically the same purposes, although they are considered weaker than *Achillea fragrantissima*.

Achillea millefolium is considered astringent, anesthetic, carminative, diaphoretic, hemostatic, and tonic.

Properties and Uses: Traditionally used as a tonic, diaphoretic, and errhine, *Achillea ptarmica* or sneezewort is valuable for chills, fevers, and other febrile diseases. The whole plant possesses errhine properties, but the flowers, particularly the florets of the disk, are the most active, and may be used, in powder, as a snuff, in headache, incipient coryza, catarrh, deafness, and other affections where errhines are desired. *A. ptarmica* is anti-inflammatory, and is used in the treatment of sore throat, diarrhea, flatulence, dysentery, gastrointestinal inflammation, blurred vision, bruises, the common cold, influenza, and stomach cramps. *A. ptarmica* is also diuretic and is used to treat chronic urinary diseases.

Achillea millefolium, the most common type of *Achillea* used in Unānī and Ayurvedic medicine, is described as stimulant, tonic, carminative, emmenagogue, antispasmodic, and anti-inflammatory. It is used internally to treat amenorrhea,

menorrhagia, and leucorrhoea. It is also given to treat dyspepsia, flatulence, diarrhea, hemorrhoids, and parasitic infestation. An infusion of the whole plant is used as a disinfectant gargle. For Native Americans, yarrow is abortive, analgesic, emmenagogue, febrifuge, laxative, stimulant, and tonic. They use the plant to treat coughs, colds, throat irritations, toothaches, bowel and urinary complaints, headache, indigestion, and respiratory diseases. Externally, Native Americans use yarrow to treat bruises, burns, sprains, and wounds, as well as to stop bleeding. Since the active ingredients in *Achillea millefolium* are choline and achilleine, which are regarded as lipotropic and suforific, the herb is used to treat infectious hepatitis.

Scientific Studies: *Hypoglycemic Activity* According to an animal study conducted by the University of Tehran, *Achillea santolina* has a high hypoglycemic activity which may be attributed to its antioxidative potential.[2]

Antiparasitic Activity According to a study conducted by the Instituto Oswaldo Cruz in Brazil, the essential oil of *Achillea millefolium* inhibits parasite growth.[3]

Anti-inflammatory Activity According to an animal study conducted by Al-Isra University in Jordan, *Achillea* extract reduced edema by 48.1 percent while diclosal Emulgel produced a 47 percent reduction of edema.[4]

Spasmolytic Activity In an animal study conducted by the University of Vienna, the concentration of the flavonoids is high enough in *Achillea millefolium* tea to exert a spasmolytic effect in the gut. The spasmolytic effect of yarrow tea is mainly caused by blockade of the calcium inward current, but additionally by mediator-antagonistic effects.[5]

Anti–H. Pylori *Activity* As part of an ongoing screening program conducted by the University of Illinois at Chicago, methanol extract of *Achillea millefolium* had a minimum inhibitory concentration of 50 microg/mL against 15 *Helicobacter pylori* strains.[6]

Antitumor Activity According to research, *Achillea millefolium* contains antitumor compounds.[7]

Anti-inflammatory Activity Research has confirmed the anti-inflammatory activity of *Achillea millefolium*.[8]

Antispermatogenic Activity Research has confirmed the antispermatogenic activity of *Achillea millefolium* in mice.[9]

Sneezewort Notes

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Spurge/*Shubrum*

Family: Euphorbiaceae

Botanical Name: *Euphorbia* spp.

Common Names: *English* Spurge; *French* Euphorbe; *Spanish* Euforbio; *Spanish* hierba de golondrina, golondrina; *German* Wolfsmilch; *Urdu/Unānī* Farfiyun, Farbiyun; *Modern Standard Arabic* farbayūn

Safety Rating: Dangerous to Deadly All types of *Euphorbia* are dangerous, and some are capable of causing cancer. The type most commonly used by herbalists is *Euphorbia hirta* or asthma weed, known in Unānī medicine as *Dudhi Kalan* and *Sheer Ghiyah*, which should only be administered in extreme cases under expert supervision. Even in such cases, it is best to avoid *Euphorbia* altogether as plenty of safe alternatives exist.

Prophetic Prescription: The Prophet asked ʻĀ'ishah "What do you use as a purgative?" She replied, "Euphorbia (*shubrum*)." The Prophet responded that it was *ḥārrun jārrun* which means that it is a very hot and a powerful laxative.[1] In another tradition, he is reported to have said, "You have senna and euphorbium (*shubrum*), which is a hot and powerful laxative, that is, it flushes out disease."[2]

Issues in Identification: According to Ibn Sīnā, *shubrum* is the latex of *Euphorbia pithyusa*. Akīlī identifies it simply as *Euphorbia*, while Thomson suggests that it is *Euphorbia resinifera*.[3] There are many types of *Euphorbia* native to Arabia. Generally known as *farbayūn* in Modern Standard Arabic, none of the numerous species of *Euphorbia* are known as *shubrum*. Bīrūnī mentions *shubrum*, which Said takes to be a species of *Tithymalus*, also spelled as *shibran* and *shilram*. The only plant known as *shubrum* is *Alhagi maurorum*, the Sinai manna or Hebrew manna plant, which is also known as *ʿāqul*, *shawk al-jimāl*, among many other Arabic dialectical names. This is certainly not the plant the Prophet warned against. *Alhagi maurorum* is a legume, not a spurge, and it is not a violent purgative. Rather, its roots are used in traditional medicine to make an infusion used for kidney or liver ailments.

Properties and Uses: *Euphorbia* is a violent purgative containing terpenic. Most spurges contain carcinogenic, highly irritant diterpene esters and are powerful purgatives. The Chinese species *Euphorbia kansui* is used as a purgative, as it is *Euphorbia pekinensis*, which also has diuretic and antibacterial effects. The North African *Euphorbia resinifera* is another drastic purgative, which is now considered far too dangerous for medicinal use. *Euphorbia lathyrus* is also far too toxic to consume as it contains a violent purgative oil similar to croton oil.

The spurge most regularly employed by herbalists is *Euphorbia hirta*, which is ester-free. The plant is anodyne, anti-asthmatic, anticatarrhal, anti-pruritic, antispasmodic, anthelmintic, carminative, a bronchodilator, demulcent, depurative, depressant, diuretic, febrifugal, galactogogue, purgative, sedative, and vermifuge. It is used to treat acute and chronic dysentery, colic, worms, cough, coryza, bronchial catarrhal affections, asthma, and emphysema. It is also used to treat warts, athlete's foot, syphilis, and skin conditions. It should only be used under expert supervision as large doses cause gastro-intestinal irritation, nausea, and vomiting.

Although animal studies on *Euphorbia hirta* suggest that it has some ability to treat certain infections and reduce pain, fever, inflammation, nervousness, and anxiety, no research has been conducted on human beings. One study, however, showed that *Euphorbia hirta* is neither safe nor effective in treating asthma. Although spurges were used by the ancient Arabs as a purgative, the Prophet warned against this dangerous use, recommending the use of henna instead. The general symptoms of ingestion are abdominal pains, blistering/irritation of the mouth/throat and vomiting. The Prophet was right to err on the side of caution as the sap of *Euphorbia hirta* is carcinogenic in nature.

Scientific Studies: *Analgesic, Antipyretic, and Anti-inflammatory Activity* According to one study, *Euphorbia hirta* possesses analgesic, antipyretic, and anti-inflammatory properties.[4]

Antimicrobial Activity According to a study conducted by Shri Vishnu College of Pharmacy in India, the ethanolic extract of the aerial parts of *Euphorbia hirta* exhibits a broad spectrum of anti-microbial activity, particularly against *Escherichia coli* (enteropathogen), *Proteus vulgaris*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*.[5]

Antidiarrheic Activity According to a study conducted by G.B. Pant University of Agriculture and Technology in India, the aqueous leaf extract of *Euphorbia hirta* decreased the gastrointestinal motility in rats and decreased the effect of castor oil-induced diarrhea in mice.[6] In another study, conducted by the Universidad de Granada in Spain, a lyophilized decoction of *Euphorbia hirta* whole plant demonstrated anti-diarrheic activity in experimental models of diarrhea induced by castor oil, arachidonic acid, and prostaglandin E2, delaying the small intestinal transit. Researchers isolated a flavonoid, known as quercitrin, with anti-diarrheic activity from this crude drug.[7]

Anti–Helicobacter pylori *Activity* According to a study conducted by National Chung-Hsing University in Taiwan, ninety-fiver percent ethanol extract of *Euphorbia hirta* showed moderate anti–*H. pylori* activity.[8]

Antiplasmodial Activity In an in-vitro study conducted by the University of Kinshasa in the Democratic Republic of the Congo, extracts from the whole *Euphorbia hirta* plant exhibited antiplasmodial activity, showing its potential for use in the treatment of malaria.[9]

Antimalarial Activity According to an in-vitro study conducted by the University of Kinshasa in the Democratic Republic of the Congo, the extract of *Euphorbia hirta* whole plant produced more than 60 percent inhibition of *P. falciparum* growth at a test concentration of 6 microg/ml. Extracts from *Euphorbia hirta* also showed a significant chemosuppression of parasitemia in mice infested with *P. berghei* with oral doses of 100–400 mg/kg per day.[10]

Anti-amebic and Spasmolytic Activity According to an in-vitro study conducted by the University of Kinshasa in the Democratic Republic of Congo, the anti-amebic and spasmolytic activity of *Eurphorbia hirta* are concentrated in the polyphenolic fraction, and not in the saponin or alkaloid containing fractions.[11]

Diuretic Activity According to an animal study conducted by Ahmadu Bello University in Nigeria, the water and ethanol extracts of *Euphorbia hirta* plant produced time-dependent increase in urine output with significant electrolyte excretion. The study suggests that the active component(s) in the water extract of *E. hirta* leaf had similar diuretic spectrum to that of acetazolamide, validating the use of *E. hirta* as a diuretic agent.[12]

Spurge Notes

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Sumac/*Summāq*

Family: Anacardiaceae

Botanical Name: *Rhus* spp.

Common Names: *English* Sumac, tanner's sumac; *French* Sumac, Sumac des corroyeurs, Vinaigrier; *Spanish* Sumaque, Zumaque; *German* Gerbersumach, Essigbaum; *Urdu/Unānī* Sumaaq; *Modern Standard Arabic* summāq, summāq al-dibāghah

Safety Rating: Generally Safe to Deadly While *Rhus coriaria* and *Rhus glabra* are considered safe for most people, some species, such as *Rhus radicans* (poison ivy), *Rhus diversiloba* (poison oak), and *Rhus vermix* (poison sumac), contain the allergen urushiol and can cause severe skin and mucous membrane irritation. Of the latter three, poison sumac is the most virulent. Some botanists consider it the most toxic plant species in the United States. Inhalation of the smoke of poison sumac can cause delirium, inflammation of the kidneys and digestive track, as well as a rash on the lining of the lungs, resulting in extreme pain, and possibly fatal respiratory difficulty. Since poison sumac can be fatal in even small doses, mistaking poison sumac for sumac can result in death. This mistake can be made easily since the poisonous and non-poisonous sumac species have similar leaves. The key to distinguishing between both varieties is based on its fruits. The non-poisonous species have red fruits that form distinctive, erect, cone-shaped terminal heads, while the poisonous variety produces hanging, whitish green fruits.

Prophetic Prescription: The Messenger of Allāh also said, "Pomegranate (*rummān*) and sumac (*summāq*) are effective in cases of bilious diseases."[1] A woman wrote to Imām ʿAlī al-Riḍā complaining of the continuous flow of menstrual blood. He wrote to her, "Take one handful of coriander (*kuzbarah*) and one of sumac (*summāq*) and soak it for one night in the open air. Then put it on the fire and sieve it. Drink a saucer of it and the blood will case, Allāh, the Exalted, willing."[2]

Issues in Identification: There is no question that the *summāq* mentioned by the Prophet is *Rhus*. It is not entirely clear, however, whether he was referring to *Rhus coriara* or another *Rhus* species. Farooqi, Álvarez Morales and Girón Irueste hold that it is *Rhus coriaria*, which is found in Syria, Iran, and the Mediterranean.[3] As Nehmé explains, the first is known in Arabic as *summāq*, while the second bears the name of *summāq al-dabbāghīn*.[4]

Properties and Uses: *Rhus coriari* is an astringent, antiseptic, repercussive, antibilious, styptic, mucilaginous herb with tonic effects. The bark is regarded as alterative; the fruits are cooling and diuretic. The root bark from *Rhus coriari* or smooth sumac is used internally for diarrhea, nausea, vomiting, dysentery, and to alleviate thirst. The fruits are used to stimulate the appetite, to relieve

bilious diarrhea, scurvy, ophthalmia, dysentery, nausea, vomiting, haemoptysis, haematemis, dieresis, leucorrhoea, feverish illnesses, and urinary complaints. The root bark is also used externally for skin irritations, sores, ulcers, vaginal discharge, and hemorrhoids. Various sumacs are high in tannins and are valued for their astringent properties.

In Unānī medicine, the most common type of *Rhus* employed is *Rhus aromatica* or dwarf sumac, which is indigenous to North America. *Rhus aromatica* is astringent, diuretic, emmenagogue, febrifuge, refrigerant, and tonic. It is used internally for sore throat, diarrhea, lekorrhea, urinary problems, inflammation of the bladder, and gonorrhea. Externally, its leaves are applied as poultice to relieve symptoms of poison ivy.

Scientific Studies: *Antimicrobial Activity* Numerous scientific studies have confirmed the antimicrobial, antibiotic, and antifungal properties of *Rhus glabra*.[5]

Anti-Hyperglycemic Activity According to a study conducted by the University of Calabria in Italy, the ethyl acetate extract of sumac poses potential in the treatment and prevention of hyperglycemia, diabetes and obesity.[6]

Antioxidative Activity In a study of *Rhus coriaria* conducted by the University of Cumhuriyet in Turkey, the methanolic extract (water-soluble part) was prepared and investigated using free radical-generating systems in vitro. The methanolic extracts of *R. coriaria* L. fruits have considerable antioxidative activity against free radicals and lipid peroxidation in vitro, a fact that may encourage in vivo studies.[7]

Sumac Notes

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Sweet Flag/*Dharīrah*

Family: Acoraceae

Botanical Name: *Acorus calamus*

Common Names: *English* Sweet flag, calamus, myrtle flag; *French* Roseau aromatique; *Spanish* Ácoro, Cálamo aromático; *German* Kalmus, Deutscher Zitwer, Deutscher Ingwer, Echter Kalmus, Magenwurz; *Urdu/Unānī* Waj Turki, Bach, Agar Turki, Ood-al waj; *Modern Standard Arabic* Dharīrah, 'irq aykar, al-wajj

Safety Rating: Dangerous With the exception of possible skin rash, the external use of *Acorus calamus* appears to be generally safe for most people. Its internal use, however, can be potentially dangerous. Besides its potential to cause stomach upset and constipation from calcium channel blockers, the ingestion of *Acorus calamus* can affect heart rhythm and interfere with heart medications and other herbs such as digoxin and foxglove. *Acorus calamus* may also interact with immunostimulating agents, hyponotics, antispasmodics, antifungals, antibiotics, amphetamines, cholesterol-lowering agents, anti-inflammatories, anticholinergics or antioxidants. Although the effects of *Acorus calamus* on cancer are controversial, it should be used cautiously in cancer patients and in patients using antineoplastic agents, as animal studies showed it to cause heart and liver damage, as well as cancer. According to the FDA, the oil of calamus of the Jammu variety is a carcinogen. *Acorus calamus* should not be consumed by women who are pregnant or lactating. Since sweet flag has hallucinogenic potential and can cause euphoria, it has the potential for abuse. Excessive consumption of the herb causes vomiting. Sweet flag, particularly in the form of oil of calamus, is subject to legal restrictions in some countries. Since safer herbs exist, the use of sweet flag for medicinal purposes should be discouraged.

Prophetic Prescription: One of the Prophet's wives had a boil on her finger. The Prophet asked her, "Do you have *dharīrah*?" She responded affirmatively. He then told her to "Apply *dharīrah* to the boil and pray to Allāh."[1] According to both Bukhārī and Muslim, 'Ā'ishah perfumed the Messenger of Allāh with *dharīrah* with her own hand at the Farewell Pilgrimage, before and during the state of *iḥrām*. It is also reported that the Prophet used to apply *dharīrah* to his beard.[2]

Issues in Identification: Bīrūnī refers to this plant as *qālamūs* and *aqirun*, which Said identifies as *Acorus calamus*. Bīrūnī also mentions *qaṣab*

al-dharīrah which, according to Said, refers to any odiferous reed, but in Egypt today, it may be the *wajj*, which is the rhizome of *Acorus calamus*.

Properties and Uses: *Acorus calamus*, known as sweet flag, calamus, and myrtle flag, is an aromatic, bitter, stimulant herb that is and apperitive, increases the secretion of gastric juices, relaxes spasms and relieves indigestion. The root and rhizome are carminative, slightly tonic, expectorant, antispasmodic, emetic, nauseant, and nervine sedative.

Internally, it is used for digestive complaints, flatulent colic, atonic dyspepsia, pain, bronchitis, sinusitis, and to help control diabetes. Externally, it is used for skin eruptions, indolent ulcers, blisters, rheumatic pains, and neuralgia. It is an important herb in Ayurvedic medicine, regarded as a restorative for the brain and nervous system, particularly after a stroke. It is also given for bleeding disorders. It is used in Chinese medicine for vomiting, diarrhea, abdominal pain, and dysentery. It is combined with *Elettaria cardamomum* to help with the digestion of dairy products. It is also used as a snuff for nasal congestion, polyps, shock, or coma.

Scientific Studies: *Genotoxic Activity* Sweet flag has been banned as a food additive and supplement in the United States because it can cause genetic mutations.[3]

Renoprotective Activity According to an animal study conducted by Hamdard University in India, *Acorus calamus* appears to possess a protective effect on nickel chloride nephrotoxicity.[4]

Spasmolytic Activity According to a study conducted by the Aga Khan University Medical College in Pakistan, *Acorus calamus* possesses a spasmolytic effect, strongly supporting its traditional use in gastrointestinal disorders such as colic pain and diarrhea.[5]

Hypolipidemic Activity In a study conducted by SNDT Women's University in India, the ethanolic extract of *Acorus calamus* and its saponins demonstrate significant hypolipidemic activity. The aqueous extract, however, showed hypolipidemic activity only at a dose of 200 mg/kg.[6]

Sweet Flag Notes

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Tamarisk/ *Ṭarfāʼ, Ghaz, Athal*

Family: Tamaricaceae

Botanical Name: *Tamarix gallica*
Common Names: *English* Tamarisk, French tamarisk; *French* Tamaris; *Spanish* Tamarisco; *German* Tamariske; *Urdu/Unānī* Maayeen Kalan; *Modern Standard Arabic* Shajarat al-ʻadhabah, ṭarfāʼ

Botanical Name: *Tamarix mannifera*
Common Names: *English* Manna tree; *French* Tamaris à manne; *Spanish* Tamarisco, Taray; *German* Tamariskenmanna, Manna-Tamariske; *Urdu/Unānī* Mayeen Kalaan, Bari Mayeen; *Modern Standard Arabic* ṭarfāʼ al-mann, Ḥaṭab aḥmar

Botanical Name: *Tamarix orientalis*
Common Names: *English* Tamarisk, Tamarisk salt tree; *French* Tamaris; *Spanish* Tamarisco; *German* Tamariske; *Urdu/Unānī* Mayeen Khurd, Choti Mayeen; *Modern Standard Arabic* ʻablah, athal

Safety Rating: Generally Safe Tamarisk is generally considered safe for most people when used as directed. It should not, however, be taken by women who are pregnant or lactating.

Prophetic Prescription: It is related by companions of the Prophet that while at war, they had nothing to eat except the leaves of tamarisk (*ṭarfāʼ*) and acacia (*samrah*).[1] The tamarisk or *athal* is mentioned in the Qurʼān (34:16).

Issues in Identification: According to some translators and commentators, the manna mentioned in the Qurʼān (5:57, 5:160, and 5:80–81) in the context of the exodus refers to a type of tamarisk, probably *Tamarix mannifera*. According to Chaudhary, there are seven species of tamarisk in Saudi Arabia. Tamarisk is widely distributed in Egypt, Jordan, Saudi Arabia, Yemen, and surrounding countries. *Tamarix aphylla* is widely distributed and cultivated as a tall shade tree, and in coastal areas to prevent soil erosion. However, it is native to Egypt and southwest Asia.[2]

According to Chaudhary, *athal* refers to tree

forms of *Tamarix* while *ṭarfah* refers to shrubby forms.[3] According to Nehmé, *ṭarfā'* and *athal* are *Tamarix*, while *ṭarfā' al-nīl* is *Tamarix nilotica*. Said says that *athal* also refers to *Tamarix dioica*. Elgood identified *athal* as *Tamarix articulata*.[4] Bīrūnī also speaks of *arṭā*. Said identifies *ṭarfā'* as *Tamarix aphylla* Kars, *Tamarix dioica*, and *Tamarix jallica*. According to Yusuf 'Ali, the famous translator of the Qur'ān, *mann* is the sweet gum obtained from the tamarisk trees from the Sinai Peninsula. Farooqi, Álvarez de Morales, and Girón Irueste identify the plant as *Tamarix mannifera*. According to Bīrūnī, *mann* is also known as *taranjubin*, which Said identifies as the tamarisk tree.

According to Ghazanfar, *Tamarix aphylla* is found from the Mediterranean region to southern Africa.[5] As Mandaville explains, *Tamarix aphylla* is common in eastern Arabia, where it is cultivated in saline or non-saline sills where water table is within reach of its roots. It is sometimes seen at sites of ruins or remote wells but never, apparently, self-propagating in the eastern part of the country. It is known in Saudi Arabic as *athal*.

Tamarix aucheriana is known as *ṭarfā'*. It is found on saline ground at roadsides and *sabkhah* (saline flat) edges. It seems to be less frequent than the other tamarisk species in eastern Arabia. *Tamarix macrocarpa* is also known as *ṭarfā'* and occurs frequently in saline ground near wells or margins of *sabkhahs*. *Tamarix mannifera* is known as *ṭarfā'*. It occurs on saline grounds at roadsides or *sabkhah* edges. Its frequency is not well-known, but it is apparently less common than *Tamarix arabica*. *Ṭarfā'* is also *Tamarix pycnocarpa* and *Tamarix ramosissima*. Although it is certain that the Prophet was referring to a species of tamarisk, it is difficult to determine the particular type with exactitude.

Properties and Uses: According to Ghazanfar, the leaves of *Tamarix aphylla* are used in childbirth, and for treating sores and wounds.[6] *Tamarix articulata* is abrasive, astringent, and tonic. It is used to check secretions. It is also used as tooth powder to polish teeth, and to treat bad breath.

Scientific Studies: *Antibacterial Activity* According to a study conducted by the School of Horticulture and Animal Production in Tunisia, the volatile oils of *Tamarix boveana* exhibit an interesting antibacterial activity.[7]

Anticancer Activity According to a study conducted by Hamdard University in India, *Tamarix gallica* is a potent chemopreventive agent.[8]

Tamarisk Notes

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Terebinth/*Baṭm, Buṭm*

Family: Anacardiaceae

Botanical Name: *Pistacia terebinthus*

Common Names: *English* Turpentine tree, Terebinth tree; *French* Térébinthe, Pistachier térébinthe; *Spanish* Terebinto, Cornicabra; *German* Terpentinpistazie, Terpentinbaum; *Urdu/Unānī* Mastagi, Mastagi Rumi, Ilak-ul Butm; *Modern Standard Arabic* buṭm sāfis, buṭm, fustuq

Botanical Name: *Pistacia vera*

Common Names: *English* Pistachio; *French* Pistachier, Pistachier cultivé; *Spanish* Alhócigo, pistacho; *German* Echte pistazie; *Urdu/Unānī* Pista Ka Darakht (tree); Pista, Fustuq (nut); *Modern Standard Arabic* buṭm, fustuq baladī, fustuq karmidī

Safety Rating: Generally Safe to Deadly *Pistacia vera* is generally considered safe. *Pistacia terebinthus* is also considered to be safe for most people when used as directed for short periods of time. It should be avoided by individuals who are allergic to members of the Anacardiaceae family, including pistachio, Chinese pistache, and *Schinus terebinthifolius* (Brazilian pepper). When used with ACE inhibitors, terebinth may have addictive effects. Since *Pistacia lentiscus* may lower blood pressure, it should not be taken with any herbs, supplements, or medications that alter blood pressure. As it may potentially cause fetal injury or death, terebinth should not be consumed by women who are pregnant or lactating.

Prophetic Prescription: The Messenger of Allāh said, "If you do not have *miswāk,* use *'anam* or *baṭm*."[1]

Issues in Identification: It is the consensus

that *buṭm* or *buṭum* is Arabic for terebinth. According to Dīnawarī, *baṭm* is the tree of *ḥabb al-khadrā* or "seed of a green plant" and has a pleasant scent. He says that it contains *'alak* or chewing gum, and that it does not grow in Arabia.[2] On the basis of this description, the Prophet may have been referring to *Pistacia terebinthus*, which grows in Iran, northern Arabia, and the Mediterranean. He may also have been referring to *Pistacia lentiscus*. Known in English as mastic tree and lentisk, its Arabic names include *mastīk*, *ḍarw*, and *sarīs*. It is also possible that the Prophet was referring to *Pistacia palaestina* (Palestine pistachio), known in Arabic as *fustuq filasṭīnī* and *buṭm*, or even *Pistacia vera*, which provides the pistachio nut. This latter is the most likely as it continues to be known as *boṭnim* and *buṭm* in various Arabic dialects.

Properties and Uses: *Pistacia terebinthus*, known as terebinth tree and Cyprus turpentine, is a bitter, aromatic, anti-inflammatory, and antiseptic herb that is expectorant, relaxes spasms, controls bleeding, promotes healing, and is effective against various parasitic organisms. Internally, it is used for streptococcal, urinary, and renal infections. It is also used for chronic bronchial and streptococcal infections, hemorrhage, gallstones, tapeworm, and rheumatism. Externally, it is used for arthritis, gout, sciatica, scabies, and lice. It has also been used in the treatment of cancer.

Scientific Studies: *Anti-inflammatory Activity* According to a study by the Universitat de Valencia, an extract from the galls of *Pistacia terebinthus* proved to be effective against chronic and acute inflammation.[3]

Terebinth Notes

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Thyme/*Sa'tar*

Family: Lamiaceae

Botanical Name: *Thymus serpyllum*
Common Names: *English* Mother of thyme, Wild thyme, Creeping thyme; *French* Serpolet, Thym sauvage, Thym serpolet; *Spanish* Serpol; *German* Feldquendel, Wilder Thymian, Betony, Quendel, Sand-Thymian, Thyme, Feldkümmel; *Urdu/Unānī* Haasha, Saatar-ul Hamer, Sanobar-ul Himaar, Jaroob Gandah; *Modern Standard Arabic* sa'tar

Botanical Name: *Thymus vulgaris*
Common Names: *English* Common thyme, Garden thyme, Pot-herb thyme; *French* Thym, Thym commun, Serphyllum, Frigoule; *Spanish* Tomillo sanjuanero; *German* Thymianquendel, Thymian, Gartenquendel, Gartenthymian; *Urdu/Unānī* Hasha, Saatar-ul Hamer, Pudina Kohi; *Modern Standard Arabic* al-'abs, sa'tar rasmī

Safety Rating: Generally Safe Thyme is generally considered to be safe for most people when consumed in food, and as medicine for short periods of time. In some cases, it can cause digestive system upset. Although it can cause irritation in some people, thyme oil seems to be safe when applied to the skin. Thyme should not be consumed by individuals who are allergic to oregano. Thyme should not be consumed in medicinal quantities by women who are pregnant or lactating, nor should it be consumed two weeks prior to surgery as it may increase the risk of bleeding.

Prophetic Prescription: The Messenger of Allāh said, "Fumigate your homes with thyme (*sa'tar*) and olibanum."[1] He also said, "Fumigate your homes with myrrh (*murr*), *shīḥ*, and thyme (*sa'tar*)."[2] According to Imām Ja'far al-Ṣādiq, "Thyme and salt chase the wind from the heart (*fu'ād*), open that which is closed, burn phlegm, increase urine (*mā'*), increase flavor, softens the stomach, removes the bad wind (*rīḥ al-khabīthah*), and give an erection."[3]

Issues in Identification: It is difficult to discern the type of thyme that was referred to in ancient herbals since there are over one hundred species found in Europe, western Asia, North Africa, and the Canary Islands. It may have been common thyme, known variously as creeping thyme, mountain thyme, wild thyme or mother-of-thyme. According to Hans Wehr, *ṣa'tar* is wild thyme or *Thymus serpyllum*. Bīrūnī writes of *sa'tar*, *za'tar* and *thayyil*, which Said identifies as *Thymus vulgaris* L. Said says that *sa'tar* may also refer to oregano since Bīrūnī said that it was *arighanun* in Latin. Kamal identifies *Thymus vulgaris* as *hāshā* and *za'tar al-ḥamīr*. According to Hans Wehr, *sa'tar* is wild thyme or *Thymus serpyllum*. Turkī also holds that *sa'tar* and *za'tar* is *Thymus serpyllum*.[4] However, according to Bīrūnī, wild thyme is *nimmām* or *nammām*. According to Nehmé,

thyme is known as *sa'tar*, *ṣa'tar*, and *za'tar*. Ouassad said that *Thymus vulgaris* is *ṣa'tar al-shā'i'*.

It should be stressed that the Arabs do not make a clear distinction between aromatic herbs of the mint family. As Gernot Katzer explains, words like *za'tar*, for example, which is often used in conjunction with qualifying or descriptive adjectives, can be applied to a variety of native herbs, including, but not restricted to, oregano, marjoram, thyme, and savory.[5] According to Kowalchik and Hylton, *za'tar* refers to *Thymbra spicata*, a type of savory which is native to Turkey and Palestine. The herb has a long history of use in the region. The herb was mentioned by Dioscorides, and remains of it were found in the tomb of Tutankhamun.

Properties and Uses: While there are many types of thyme, the main medicinal ones are *Thymus vulgaris* and *Thymus serpyllum*. *Thymus vulgaris*, known as common thyme, is an aromatic, warming, astringent herb that is expectorant, improves digestion, relaxes spasms, and controls coughing. It is also tonic, carminative, emmenagogue, antispasmodic, strongly antiseptic, and antifungal. Common thyme is used internally for dry coughs, lack of appetite, colic, flatulence, whooping cough, bronchitis, excess bronchial mucus, asthma, laryngitis, indigestion, gastritis, and diarrhea and enuresis in children. It is also used to treat headache, hysteria, intestinal gas, painful menstruation, worm infections, and to induce sweating. Externally, common thyme is used to treat tonsillitis, gum disease, fungal infections, rheumatism, athlete's foot, arthritis, wounds, as well as fungal and yeast infections.

Thymol, the highly antiseptic volatile oil from thyme, is an important ingredient in many toothpastes, mouthwashes, and topic antirheumatic preparations. Common thyme is often combined with *Lobelia inflata* and *Ephedra* species for asthma, and with *Marrubium vulgare*, *Prunus serotina*, and *Drimia maritima* (commonly described as *Urginea maritima*), for whooping cough. Its oil is used in aromatherapy for aches and pains, exhaustion, depression, upper respiratory tract infections, and skin and scalp complaints. Common thyme is never administered internally to pregnant women. Thyme oil may cause irritation to skin and mucous membranes, as well as allergic reactions.

Scientific Studies: *Antifungal Activity* In a study conducted by the University of Zagreb thyme essential oil demonstrated a wide range spectrum of fungicidal activity. The vaporous phase of the oil exhibited long-lasting suppressive activity on molds from damp dwellings. In low concentration, essential oil of thyme and thymol could be used for disinfection of moldy walls in the dwellings.[6]

Antiherpetic Activity In a study conducted by the University of Heidelberg in Germany, *Thymus vulgaris* extract was shown to possess high antiviral activity against HSV-1, HSV-2 and an acyclovir resistant strain. Both types of herpes virus including the acyclovir resistant strain were considerably neutralized after treatment with the extract prior to infection. At maximum noncytotoxic concentrations of the extracts, plaque formation was significantly reduced by > 90 percent for HSV-1 and HSV-2 and > 85 percent for the acyclovir resistant strain. In time-response studies over a period of two hours, a clearly time-dependent activity was demonstrated. These results indicate that the extracts affect HSV before adsorption but have no effect on the intracellular virus replication. Therefore, the extract exerts its antiviral effect on free HSV and offers a chance to use it for topical therapeutic application against recurrent herpes infections.[7]

Anticold Activity In a human trial of 62 patients with the common cold, bronchitis or respiratory tract diseases with formation of mucus, the daily intake of 10 ml of ivy and thyme syrup for 12 days, the 13 doctors and 62 patients assessed the efficacy of the treatment as good or very good in 86 percent and 90 percent of the cases, respectively. The tolerability was assessed as good or very good by 97 percent of the doctors and patients. In light of its traditional use in cough syrup, its reduction in the symptom score, and the tolerability of the syrup, the scientists concluded that ivy and thyme syrup appeared to alleviate cough in consequence of the common cold, and bronchitis or respiratory tract diseases with mucus formation.[8]

Antitumor Activity A study conducted by the Beijing University of Traditional Chinese Medicine, found that ethyl acetate is the major antitumor fraction in ethanol extracts from *Thymus quinquecostatus* Celak.[9]

Sedative Activity In an animal study conducted by Hanbul Cosmetics in Korea, it was demonstrated that the inhalation by mice of essential oils such as thyme, ginger, and peppermint, resulted in 5 percent to 22 percent of immobility, confirming their sedative effects in aromatherapy.[10]

Antibacterial Activity In a study of 11 essential oils from commercial origin conducted by the Instituto Nacional de Antropología e Historia in Mexico, the essential oil of *Thymus vulgaris* exhibited the highest and broadest antibacterial activity against prevalent pathogenic bacteria strains which were resistant to selected antibiotics.[11]

Antimicrobial Activity Research has confirmed the anti-microbial activity of thyme.[12]

Thyme Notes

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Truffles/*Kamā'*

Family: Terfeziaceae

Botanical Name: *Tirmania* spp.; *Terfezia* spp.

Common Names: *English* Truffle; *French* Truffle; *Spanish* Trufa; *German* Trüffel; *Urdu/Unānī* Khumbhi, Kumaat; *Modern Standard Arabic* kamā'

Safety Rating: Generally Safe Truffles are generally considered to be safe for most people.

Prophetic Prescription: The Prophet said, "Truffles are from manna and manna is from Paradise."[1] He said, "Truffles are the manna of manna, and their water contains a cure for the eyes."[2] He said, "Truffles are a manna which Allāh sent to the children of Israel. Their water is a cure for the eyes."[3] One of the Prophet's companions commented that truffles were the pox of the earth. The Messenger of Allāh responded that "No, they are a type of manna. Their water is a useful remedy for the eyes."[4] He also said, "The Fire laughed, and out came truffles, and the Earth laughed, and out came capers."[5]

Issues in Identification: Bīrūnī speaks of *kamā'*, *bīamī*, *shaḥmat al-arḍ*, *bayḍat al-arḍ*, *bayḍat al-balad*, and *nibāt al-ra'd*, which Said identifies broadly as mushroom. The white one is *faqa'* and '*asqal*. According to Hans Wehr and Turkī, *kamā'* means both truffle and mushroom.[6] Muḥammad 'Alī Barr also translates *kamā'* as both truffles and mushrooms.[7]

While the term may have acquired a more general meaning over time, *kamā'* referred exclusively to truffles in classical Arabic. In his chapter on truffles, Abū Ḥanīfa al-Dīnawarī, the foremost authority on classical Arabic botanical nomenclature, explains that *kamā'* grows under the earth.[8] Farooqi cites traditions in which the term *kamā'* is translated at times as truffle, and at other times as mushroom. It is clear from both linguistic context and phytogeography that the Prophet was referring to truffles, and not mushrooms, which are known as *fuṭr*. Álvarez de Morales and Girón Irueste are correct in identifying *kamā'* as truffles. For them, the species is *Tuber album* Sow.[9] As Stobart explains,

> The terfezias are fungi related to the truffles and to be distinguished from them only by botanists. They grow to some extent in southern Europe, but are very plentiful in North Africa and the Middle East, where travelers are likely to come across them. They are abundant in the Syrian desert, in places like Palmyra, and also in the Libyan desert. Although usually pale in color, dark varieties are also found, and these are considered superior. They are somewhat tasteless when compared to true truffles, but still excellent when cooked in local ways or eaten raw as salad.[10]

As Chaudhary explains, *kamā'* refers to desert truffles, which are also known as *fugī'*.[11] Desert truffles are known in Morocco as *terfās*. In Egypt, the Bedouin of the Western Desert call them *terfās*. In Kuwait, they are known as *fagga*. In Saudi Arabia, they are known as *faq'*, and in Syria they are known by their classical Arabic name *kamā'*. The Iraqis call them *kamā'* (or *kima* or *chima* depending on local dialects) while the Omanis call them *faqah* or *zubaydī*.

Properties and Uses: Desert truffles occur in wild areas of Arabia and North Africa. Rich in carbohydrates, protein, potassium, and phosphate, they are a good source of fiber and essential amino acids. Desert truffles also contain an appreciable amount of ascorbic acid and fair amount of iron. An important edible resource in arid regions,

desert truffles often serve as a meat substitute. In fact, some varieties contain 20 to 27 percent protein, 85 percent of which is digestible by humans. Since *Terfezia africana* flour is so filled with nutrients, some scholars have suggested that it be added to wheat flour at a rate of 5 to 10 percent in order to enrich it. Arab Bedouins have traditionally employed truffles to treat eye diseases and to activate the synthesis of sex hormones in the body.

Scientific Studies: *Antimicrobial Activity* Research has confirmed that the aqueous extract of the truffle *Terfezia claveryi* contains a potent antimicrobial agent that is protein in nature, and may be used in the treatment of eye infections caused by *Pseudomonas aeruginosa*.[12]

Antibacterial Activity In an in-vitro study conducted by Jordan University of Science and Technology, a 5 percent aqueous extract of *Terfezia claveryi* inhibited the growth of *Staphylococcus aureus* by 66.4 percent.[13] According to a study published in Kuwait, truffle extract is effective against trachoma, a bacterial infection of the eye.[14] Several other studies have demonstrated the broad antibiotic activity of truffle extracts.[15]

Truffles Notes

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Turnip/*Saljam*

Family: Brassicaceae

Botanical Name: *Brassica rapa* var. *rapa*

Common Names: *English* Rape, Turnip; *French* Rave, Grosse rave; *Spanish* Nabo; *German* Wasserrübe, Weiße Rübe, Rübsamen, Rübsen; *Urdu/Unānī* Shaljam, Shalgham, Lift; *Modern Standard Arabic* lift

Botanical Name: *Brassica napobrassica*

Common Names: *English* Field cabbage, Swede turnip; *French* Chou champêtre; *Spanish* Repollo chino; *German* Feldkohl, Raps, Rübenkohl; *Urdu/Unānī* Lahee; *Modern Standard Arabic* lift, shaljam

Safety Rating: Generally Safe Turnips are generally considered to be safe for most people.

Prophetic Prescription: According to Imām Ja'far al-Ṣādiq, "Whoever has a root of leprosy (*judhām*), then he should eat turnip (*shaljam*) when it is in season for it will take it away from you."[1] The Imām also said, "Eat turnip (*shaljam*), and continue to eat it regularly. Hide it from anyone but its owner, for we all have the root of leprosy (*judhām*). Dissolve it by eating it."[2] According to Imām Mūsā al-Kāẓim, "Eat turnips (*al-lift*), which is *al-shaljam*, for there is not one who has a strain of leprosy (*'irq min al-judhām*) but that the eating of turnips (*al-shaljam*) dissolves it." When asked whether they should be consumed raw or cooked, he replied, "Both."[3]

Issues in Identification: Bīrūnī speaks of both *lift* and *shaljam*, which Said identifies as *Brassica campestris* L., or wild turnip. According to Nehmé, *Brassica rapa* is known as *lift* and *suljum* in Modern Standard Arabic.

Properties and Uses: *Brassica campestris*, or wild turnip, is high in vitamin C and is used as an antiscorbutic. Internally, it is used in the treatment of bile stones, coughs, colds, bronchitis, and whooping cough. Externally, it is used for the treatment of itchy skin. Erucic acid, which is found in the seed oil of some varieties, is toxic. Modern cultivars, however, have been selected to be virtually free of erucic acid. Turnip seed oil

is used as a lubricant, luminant, and in soap making.

Scientific Studies: *Anticancer Activity* In a population-based case-control study among Chinese women in Shanghai researchers found that breast cancer declined with an increased intake of dark yellow-orange vegetables, including Chinese white turnips.[4]

Aphrodisiacal Activity According to a three-month animal trial conducted by King Saud University in Saudi Arabia, *Brassica rapa* extract significantly increased both sperm motility and sperm contents without producing a spermatoxic effect.[5]

Turnip Notes

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Violet/*Banafsaj*

Family: Violaceae

Botanical Name: *Viola odorata*

Common Names: *English* Violet, sweet violet; *French* Violette, Violette odorante; *Spanish* Violeta; *German* März-Veilchen, Veilchen, Duft-Veilchen, Echtes Veilchen, Wohlreichendes Veilchen, Veil; *Urdu/Unānī* Banafshah, Banafsaj, Banafshu, Farfir; *Modern Standard Arabic* banafsaj

Safety Rating: Generally Safe Violet is generally considered to be safe for most people when used as directed. It should not, however, be consumed by women who are pregnant or lactating.

Prophetic Prescription: The Prophet Muḥammad recommended the use of violet oil in the following terms, "Use the oil of violets, for the excellence of violet over all the oils is as the excellence of the *Ahl al-Bayt* over people."[1] He is also quoted as saying "You have violet oil which is better than other oils like my excellence is superior to your lowly condition."[2] The Prophet is also reported to have said, "Anoint yourselves with violets, for they are cold in summer and hot in winter."[3] The Messenger of Allāh is also reported to have said, "The excellence of the violet is like the excellence of Islām over other religions."[4] According to many scholars, however, this is actually a popular saying, which has been erroneously attributed to the Prophet.

According to Imām Jaʻfar al-Ṣādiq, "The oil of violets is the chief oil."[5] He said, "There is nothing dearer to us than the violet from your region."[6] He said, "The most excellent oil is violet," recommending his followers to "anoint yourselves with it, for its excellence over the rest of the oils is like our excellence over men."[7] He also stated that "The excellence of violet oil over other oils is like the excellence of Islām over other religions."[8] He said, "Oil of violets among the oils is as the believer among men." Then he said, "It is hot in the winter and cold in the summer. The rest of the oils do not have this merit."[9] He also stated that "The violet is hot in the winter and cold in the summer, gentle for our Shīʻah, and dry for our enemies. If people knew what is in the violet, every ounce would be sold for a dinar."[10] The Imām also said, "There are four things which improve habits: Sūrānī pomegranate (*rummān sūrānī*), boiled unfertilized female dates (*bisr*), violet, and endive (*hindibā'*)."[11] He also explained that "The best of oil is violet oil. It removes sickness from the head."[12]

Issues in Identification: Bīrūnī speaks of *banafsaj* and Said identifies it as blue violet or *Viola odorata*. Álvarez de Morales, Girón Irueste, and Barr also identify *banafasaj* as *Viola odorata* L.[13] As Nehmé explains, *Viola* is *banafsaj*, and *Viola odorata* is *banafsaj ʻaṭir*.[14] As Mandaville explains, *Viola tricolor* is rare in eastern Arabia, existing only as an introduction. The nearest native violet population in Arabia is the drought-tolerant *Viola cinerea*, found in the rocky foothills and mountains of Oman. According to Chaudhary, *Viola cinerea* is the only wild variety found in Saudi Arabia, growing in the southern heights.[15]

Properties and Uses: *Viola odorata* is a bittersweet, mucilaginous cooling herb that cleanses toxins and has expectorant, antiseptic, and anticancer effects. It is considered pectoral, antipyretic, diaphoretic, diuretic, astringent, aperient, demulcent, alterative, cathartic, laxative, and suforific. In large doses, its rhizomes are emetic and purgative. The flowers, leaves and roots are rich in vitamins A and C.

Viola odorata is used internally for bronchitis, excess respiratory mucus, coughs, whooping cough and asthma. It possesses emollient and soothing expectorant properties which are similar to, but lesser than, ipecacuanha. It is used to treat fever, constipation, cough, inflammation, nervousness,

as well as cancer of the breasts, lungs, and digestive tracts. Violet has a reputation for treating tumors, both benign and cancerous. It is reputed to be slightly sedative. The flowers are useful in cases of anxiety and insomnia. The flowers and seeds also act as laxatives.

Viola odorata is used externally for mouth and throat infections. In aromatherapy, it is used for bronchial complaints, exhaustion, or skin problems. It is applied to scrofula, syphilis, and nephritis. According to Ibn Buṭlān's aromatherapy, the scent of violets calm frenzies; when consumed, they purify.[16] Ibn Sīnā applied violet oil to the head to treat convulsion.[17] As for Samarqandī, he used a combination of violet and pomegranate juice for the treatment of eye inflammations.[18]

Scientific Studies: *Antipyretic Activity* According to animal studies, sweet violet leaf extracts may reduce fever as effectively as aspirin.[19]

Antiplasmodial Activity In a study conducted by the University of Mississippi, a species of the *Viola* genus from South Korea, *Viola verecunda*, was found to contain epi-oleanic acid which displays high antiplasmodial activity.[20]

Antibacterial Activity According to a study conducted by the University of Medical Sciences in Poland, the infusion, decoction, and ethanol extract of *Viola tricolor* were found to be most effective against tested microorganisms.[21] In another study, conducted by the Chinese Academy of Medical Sciences in Beijing, the petroleum ether and ethyl acetate extracts of *Viola yedoensis* showed activity against *Bacillus subtilis* and *Pseudomonas syringae*.[22]

Anti-HIV Activity Most promising of all is a study conducted by the Chinese University of Hong Kong, in which twenty-seven medicinal herbs reputed in ancient Chinese folklore to have anti-infective properties were extracted were tested for inhibitory activity against the human immunodeficiency virus.[23] Of the twenty-seven herbal extracts, eleven were found to be active. One of these extracts, *Viola yedoensis*, was studied in greater depth. It was found that its extract completely shut off the growth of HIV at a subtoxic concentration in virtually every experiment. On the basis of this study, the group of scientists concluded that *Viola yedoensis*, and other Chinese medicinal herbs, appear to be a rich source of potentially useful materials for the treatment of human immunodeficiency virus infection.

Violet Notes

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Walnuts *see* Nuts

Watercress/*Jirjīr*

Family: Brassicaceae
Botanical Name: *Nasturtium officinale*

Common Names: *English* Watercress; *French* Cresson officinal; *Spanish* Berro, Mastuerzo de agua; *German* Brunnenkresse; *Urdu/Unānī* Jirjir, Qurrah-al Ain; *Modern Standard Arabic* jirjīr, qurrah makhzaniyyah, qurrat al-'ayn, ḥurf, ḥurf al-mā', rashād, ḥab al-rashād

Safety Rating: Generally Safe to Dangerous Watercress is generally considered to be safe for most people so long as it is produced in fresh, clean water. Consumption of uncooked water plants like watercress, which provide shelter for liver flukes, particularly when animal waste is present in the water, should be avoided in order to prevent *fascioliasis*. A parasitic infection caused by *Fasciola hepatica* or *Fasciola gigantica*, fascioliasis can cause damage and enlargement of the liver during the acute phase, and can later cause severe pain in the upper right abdomen, yellowing of the skin, and skin inflammation.

Prophetic Prescription: According to the Prophet Muḥammad, "Watercress (*jirjīr*) is an herb from Ethiopia, and I have seen it growing in the fire of Hell."[1] He also said, "Watercress (*jirjīr*) is a painful plant. It seems to have been created from Fire."[2] He also said, "Do not consume watercress (*jirjīr*) since this plant spreads the source of elephantiasis."[3] Imām 'Alī al-Riḍā used to say "Lemon balm (*al-bādharūj*) for us and watercress (*al-jirjīr*) for the Banū Umayyah."[4]

Issues in Identification: The identification of *jirjīr* has been a source of a great deal of confusion for both classical and contemporary commentators and translators since the term is used to describe *Eruca sativa* (rocket), *Lepidium sativum* (garden cress), as well as *Nasturtium officinale* (water cress). This might explain why Elgood simply translates it as "cress" without being more specific.[5]

According to Ibn Ṭūlūn, doctors used to call the plant *baqalah 'Ā'ishah*.[6] Farooqi suggests that it may be *Eruca sativa*, known in English as rocket, as its seed contains very bitter oil. Álvarez Morales and Girón Irueste also identify *jirjīr* as *Eruca sativa*.[7] And, although the *National Formulary of Unānī Medicine* equates *jirjīr* with *Nasturtium*, C.P. Khare insists that it is *Eruca sativa*. For Nehmé, *jarjīr* refers to *Eruca sativa* in Modern Standard Arabic. According to Mandaville, *jarjīr* is also the colloquial Saudi Arabian peasant name for *Eruca sativa*. Although shared by many, the view that *jirjīr* represents *Eruca sativa* is unconvincing as it is only known in Eastern Arabia as a weed in farm fields, and occasionally along roads. *Nasturtium officinale*, however, is found in the southwestern heights of Saudi Arabia where it is also known as *qurat al-'ayn* and *ḥurf*.[8]

According to Bīrūnī, *jarjīr* is known as *arzūmūn* in Latin, and Said has identified it as *Lepidium sativum*. According to one of Bīrūnī's sources, however, there were two varieties of *jarjīr,* one of which was fragrant, and the other of which was sharp and pungent. Bīrūnī also speaks of *jarjīr al-mā'*, which he also calls *karafs al-mā'* and *qurrat al-'ayn*. His authorities state that it is a fragrant aquatic herb, with foliage like celery, having a sticky liquid which adheres to the hands. Said identifies it as *Nasturtium indicum*.

When the Prophet Muḥammad described *jirjīr*, he said that it was so hot that it seemed to have been made in hell. This is a perfect description of watercress as its generic Latin name, *Nasturtium*, is derived from the words *nasus tortus* (a convulsed nose) on account of its pungency. As the *Larūs* dictionary describes, *jarjīr* "burns the mouth and the tongue." Although the Prophet Muḥammad simply said *jirjīr*, which means cress, and did not specify *al-mā'*, which means water, he was unequivocally describing *jirjīr al-mā'* (watercress) and not *jirjīr* (gardencress). According to Nehmé, *jarjīr al-mā'* refers to *Nasturtium officinale* in Modern Standard Arabic. The usage of *jirjīr* for watercress instead of *jirjīr al-mā'* has been preserved in both Egyptian and Syrian colloquial Arabic, as attested by Hans Wehr. Turkī also agrees that the *jirjīr* of the Prophet refers to watercress or rocket.[9]

Properties and Uses: *Nasturtium officinale* is a source of phytochemicals and antioxidants. Rich in vitamins and minerals, watercress contains vitamin A, vitamin C, iron, iodine, folic acid, and calcium. Due to its high vitamin C content, watercress has been used as an antiscorbutic for centuries. Watercress is considered mildly stimulant, diuretic, expectorant, appetitive, diuretic, emmenagogue, galactagogue, anthelmintic, ecbolic and abortifacient, aphrodisiac, vesicant, resolvent, aperient, alterative, tonic, carminative, and digestive.

It is used internally for edema, excess mucus, bronchitis, wet coughs, acne, eczema, rheumatism, and anemia, as well as debility associated with chronic disease, scurvy, and gall bladder complaints. According to Ibn Buṭlān, watercress augments the production of sperm and is thus good for coitus.[10] The seeds are used to treat hiccup, dysentery, diarrhea, flatulence, leucorrhea, and skin problems.

Scientific Studies: *Anticancer Activity* Many studies have shown that watercress contains anticancer compounds.[11] According to the University of Minnesota Cancer Center, a large amount of data demonstrate that isothiocyanates, which are released in substantial quantities upon consumption of normal amounts of cruciferous vegetables, act as cancer chemopreventive agents.[12] Some of these naturally occurring isothiocyanates are effec-

tive inhibitors of cancer in rodents and have quite specific effects, including the prevention of lung tumorigenesis. Similar effects have been observed in smokers who consumed watercress. On the basis of these observations and knowledge of the carcinogenic constituents of cigarette smoke, scientists believe that a strategy for chemoprevention of lung cancer can be developed. In another study, crude watercress extract proved to be significantly protective against the three stages of the carcinogenesis process: initiation, proliferation, and metastasis.[13]

Watercress Notes

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Wheat/*Ḥinṭah*

Family: Poaceae
Botanical Name: *Triticum* spp.
Common Names: *English* Wheat; *French* Blé, froment; *Spanish* Trigo; *German* Weizen; *Urdu/Unānī* Gehun, Gandum; *Modern Standard Arabic* ḥinṭah

Safety Rating: Generally Safe Wheat is generally considered to be safe for most people.

Prophetic Prescription: The Messenger of Allāh once said, "I would love to have bread made from brown wheat."[1] After reaching Medina, the Prophet Muḥammad is said to have never consumed wheat bread for three consecutive days.[2] According to Farooqi, this was because "Wheat was costlier and barley was cheaper."[3] However, there may be a medical reason for this dietary choice. As several studies have shown, there appears to be a link between wheat intake and diabetes. Reducing his intake of wheat may have been a preventative measure taken by the Prophet. When a companion mentioned to him that he had applied nutgrass (*al-su'd*) to his sore teeth, Imām 'Alī al-Riḍā advised him to "Take wheat (*al-ḥinṭah*), husk it, and extract the oil. It the tooth is decayed and rotten, put two drops of the oil in it. Put some oil on a piece of cotton and place it in the ear near the tooth for three nights. It will stop [the decay], Allāh, the Exalted, willing."[4]

Issues in Identification: It is the consensus that *ḥinṭah* and *burr* are Arabic for wheat. It is known in Saudi Arabic as both *ḥinṭah* and *qamḥ*. During biblical times, the wheat that was grown in the Holy Land was *Triticum durum* or durum wheat as well as *Triticum dicoccum* or emmer. As Duke explains, *Triticum aestivum* (common wheat), and *Triticum spleta* (spelt) do not even grown in Palestine. It is quite possible then that the wheat of the Prophet was durum or awned wheat. If it was *Triticum aestivum*, known as common wheat or bread wheat, it was certainly imported from wheat-growing regions such as Egypt, the bread basket of Imperial Rome, and was a whole wheat, as opposed to a white wheat.[5]

Properties and Uses: Wheat is antibilious, antihydrotic, antipyretic, antivinous, sedative, and stomachic. The young stems are used to treat intoxication and the ash is used to remove skin blemishes, while the fruit is antipyretic and sedative. The light grain is antihydrotic and is used to treat night sweats and spontaneous sweating. The seed is said to contain sex hormones and is used in China to promote female fertility. The seed sprouts, which are antibilious and antivinous, are used to treat malaise, sore throat, throat, thirst, abdominal coldness and spasmic pain, constipation and cough. The plant also possesses anticancer properties.

Scientific Studies: *Diabetes-Inducing Activity* According to a study conducted by Virginia

Polytechnic Institute and State University, wheat gluten may be one of the elusive environmental triggers in type 1 diabetes.[6] According to a U.S. Environmental Protection Agency report, the underlying cause of mortality from myocardial infarction and type 2 diabetes increased, and the underlying cause of mortality from coronary atherosclerosis decreased, in countries where a large proportion of the land area is dedicated to spring and durum wheat farming.[7] Several other human trials have suggested a link between insoluble dietary fiber and diabetes.[8]

Wheat Notes

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Wormwood/*Shīḥ*

Family: Asteraceae

Botanical Name: *Artemisia arborescens*
Common Names: *English* Shrubby wormwood, tree wormwood; *French* Armoise arborescente; *Spanish* No common name; *German* Halbstrauchiger Wermut, Strauch-Wermut; *Modern Standard Arabic* Shīḥ mushajjir, Shaybah, Dhaqn al-shaykh, Rayḥān abyaḍ

Botanical Name: *Artemisia absinthium*
Common Names: *English* Wormwood, Absinthe, artemisia; *French* Absinthe, Grande absinthe, Absinthe amère, Herbe aux vers; *Spanish* Ajenjo, Ajorizo, Artemisia amarga, Hierba santa; *German* Wermut, Absinth; *Urdu/Unānī* Afsanteen; *Modern Standard Arabic* Afsantīn, Dasīsah, Shīḥ rūmī, Kushūth rūmī, Shwaylā, Shaybah

Botanical Name: *Artemisia herba-alba*
Common Names: *English* herba-alba, white wormwood; *French* Armoise herbe-blance; *Spanish* Ajenjo moruno; *German* Weißer Wermut, Pyrenäen-Wermut; *Modern Standard Arabic* Shīḥ, Ghurayrah

Botanical Name: *Artemisia judaica*
Common Names: *English* Judean wormwood; *French* Absinthe de Judée, Semen-contra, Armoise de Judée; *Spanish* Artemisia judaica, Chihai; *German* Wermut aus Judaea; *Modern Standard Arabic* shīḥ, shīḥān, ḥashīshah khurasāniyyah

Botanical Name: *Artemisia monosperma*
Common Names: *English* One-seeded wormwood, sand wormwood; *French* Armoise à une graine; *Spanish* Artemisia monosperma; *German* Einsamiger Wermut; *Modern Standard Arabic* Shīḥ Uḥādī al-bizrah, 'Adhir

Botanical Name: *Artemisia santonicum*
Common Names: *English* Holy wormwood, Semen-contra; *French* Armoise santonique, Semencontra; *Spanish* Artemisia Santónico, Ajenjo Marino; *German* Wurmsamen, Heiliger Beifuß, Salz-Wermut, Salz-Beifuß, Salzsteppenbeifuß; *Modern Standard Arabic* Shīḥ khurasānī, qayṣūm al-ānshī

Botanical Name: *Artemisia scoparia*
Common Names: *English* Broom wormwood; *French* Armoise à balais; *Spanish* Artemisia scoparia; *German* Besen-Beifuß; *Urdu/Unānī* Baranjasif, Balanjasif, Bua-e Madaran; *Modern Standard Arabic* Shīḥ miknāsī, Silmās

Botanical Name: *Artemisia vulgaris*
Common Names: *English* Mugwort, common wormwood; *French* Armoise, Herbe à cents gouts; *Spanish* Altamisa, Hierba de San Juan; *German* Echter Beifuß, Gewöhnlicher Beifuß, Mugwurz, Beinweich, Besenkraut, Donnerkraut, Gänsekraut, Gürtlerkaurt, Jungfernkraut, Sonnenwdel, Sonnwendgürtel, Throwurz, Wilder Wermut; *Modern Standard Arabic* Barnajāsaf, Shūwilā', Ḥabqu al-rā'ī

Safety Rating: Generally Safe to Deadly
The occasional consumption of wormwood in small quantities is generally considered to be safe for most adults. Even small quantities, however, can cause nervous disorders, insomnia, and convulsions in some cases. In sensitive people, the mere smell of the plant can cause headaches and

nervousness. Large and long-term consumption of wormwood, however, can be potentially perilous as it contains a volatile oil which is an active narcotic poison. Habitual or large doses of wormwood is toxic to the nervous system, causing convulsions, insomnia, nausea, nightmares, restlessness, tremors, and vertigo. As such, it should not be used by patients who suffer from nervous disorders or who are taking medicine for seizures. Since wormwood is a uterine stimulant, it must be avoided during pregnancy and lactation. Due to its dangers, wormwood should not be consumed by small children, particularly those under the age of six. It should not be ingested by those who suffer from cirrhosis, hepatitis, gall bladder obstruction or kidney disease. Due to its potentially irritating action, it should be avoided by people with stomach or intestinal ulcers. Treatment with wormwood tea should not surpass more than a few days.

The essential oil of wormwood is toxic and must never be used internally. Absinthe or Green Fairy, an alcoholic beverage made from wormwood, is addictive and highly toxic to the nervous system. As a result, it is banned in many countries. Since the term wormwood applies to many species, positive identification should not be attempted by non-experts due to the dangers posed by erroneous identification. For the sake of safety, wormwood should only be used in medicinal doses under expert supervision. Symptoms of wormwood overdose include restlessness, vomiting, vertigo, tremors, and convulsions.

Prophetic Prescription: The Messenger of Allāh said, "Fumigate your homes with *Olibanum* and wormwood (*shīḥ*)."[1] He also said, "Fumigate your homes with wormwood (*shīḥ*), myrrh (*murr*), and thyme (*ṣa'tar*)."[2]

Issues in Identification: In Modern Standard Arabic, *Artemisia* is known as *shīḥ* and *ḥabaq al-rā'ī*. According to Bīrūnī, the plant was known in classical Arabic as *Arṭamasiyā*, *Arṭamāsā*, *Afsantīn*, *ifsintīn*, *rayḥān abyaḍ*, *shawaṣarā*, *qayṣūm*, *marwah*, *misk al-jān*, and *khutruq*, which Said identifies as *Artemisia absinthium*. Bīrūnī says that the plant is also known as *shaybah*, *ifsintīn*, *rayḥān abyaḍ*, *shawaṣarā*, *qayṣūm*, *marwah*, *misk al-jān*, and *khutruq*, which Said identifies as *Artemisia absinthium* L. According to Hans Wehr, *shībah* is *Artemisia arborescens* L., while *shīḥ* is an Oriental variety of *Artemisia*. Said identifies *shīḥ* as Armenian wormwood or *Artemisia abrotanum* L. Farooqi believes that it refers to *Artemisia maritima*. For Turkī, *shīḥ* refers to *Artemisia herba-alba*, known by the common name of herbaceous absinthe. Álvarez Morales and Girón Irueste simply identify *shīḥ* as *Artemisia*.[3] Thomson translated *shīḥ* as thyme.[4]

According to Mandaville, *Artemisia sieberi* is often referred to as *Artemisia herba-alba*. However, this taxon is now considered by authorities to be restricted to the western Mediterranean. Next to *Achillea fragrantissima*, it is the strongest aromatic plant of the northern plains and Summan. According to Ghazanfar, *Artemisia sieberi* is found in Saudi Arabia, and northern Oman, in rocky, gravelly, and silty wadi beds. It is also found in Northern Africa, and Southwest Asia.[5] According to Mandaville, it is occasional to locally frequent in eastern Arabia, particularly on silt floors of wadis and basins, usually in rocky country. It is known colloquially as *shīḥ*. It is used by Bedouin as a medicinal, often by inhaling the smoke.

As Mandaville explains, *Artemisia judaica* is a northwestern Arabian species of *Artemisia*, which is known in the colloquial as *bu'aythirān*. *Artemisia monosperma* is locally common in deep sands in the northern and central Dahna and the red sand bodies of central Arabia. It is known in the colloquial as '*adhir*. *Artemisia scoparia* is infrequent in eastern Arabia, found in silt-floored basins of the northern plains and Summan, sometimes at roadsides on disturbed ground. It is known in the vernacular as '*uwaydhirān*, a diminutive of '*adhir*.

As we read in Duke, biblical wormwood was most likely *Artemisia herba-alba*, although *Artemisia judaica* is similarly used. Egyptian bedouins sell both species in Cairo markets. Duke also relates that the Lebanese use *A. arborescens*, *A. herba-alba*, *A. judaica*, and *A. maritima* interchangeably. In all likelihood, the Prophet was using the term *shīḥ* as a generic common name without pointing to a specific species.

Properties and Uses: There are several hundred types of *Artemisia*, many of which are used medicinally. Known as wormwood and, in the U.S., as sage brush, they are among the most bitter of herbs. If we limit ourselves to the most prevalent species of wormwood found in Arabia, the *shīḥ* referred to by the Prophet may include *Artemisia abyssinica*, a perennial, sand-stabilizing species common in the great inland deserts, or *Artemisia maritima*, known as sea wormwood. *Artemisia maritima* is an anthelmintic, antiseptic, antispasmodic, carminative, cholagogue, emmenagogue, febrifuge, stimulant, stomachic, tonic, and vermifuge. Although not often used in herbal medicine, its medicinal properties are similar to *A. absinthium*, the type of wormwood most commonly used in Unānī medicine, though milder in action. *Artemisia absinthium* is considered resolvent, deobstruent, diuretic, tonic, antiperiodic,

vermicidal, febrifuge, stomachic, diaphoretic, antiseptic, anti-inflammatory, and slightly narcotic.

Artemisia maritima is used primarily as a tonic for the digestive system, treating intermittent fevers, and as a vermifuge. The leaves and flowering shoots are anthelmintic, antiseptic, antispasmodic, carminative, cholagogue, emmenagogue, febrifuge, stimulant, stomachic, tonic, and vermifuge, while the unexpanded floral heads contain the vermicide santonin. *Artemisia maritima* is more powerful than chloroquine.

Scientific Studies: *Potential Health Hazards* In an animal study conducted King Saud University in Saudi Arabia, *Artemisia abyssinica* leaves, a traditional medicine for the treatment of various disorders, were fed to male Wistar rats at 2 percent and 10 percent of the standard diet for 6 weeks. At 2 percent the *A. abyssinica* leaf diet was not toxic to rats. Depression in growth, hepatopathy and nephropathy were observed in rats fed a diet containing 10 percent of *A. abyssinica* leaves. These findings were accompanied by leukopenia, anemia and alterations of serum aspartate aminotransferase, alanine aminotransferase and gamma glutamyl transferase activities with changes in concentrations of total protein, albumin, cholesterol and urea.[6]

Insecticidal Activity According to one study, *Artemisia absinthium* contains insecticidal agents.[7]

Antifertility Activity In an animal study conducted by King Saud University in Saudi Arabia, significant sperm damage was observed in *A. abyssinica*-treated mice while *A. inculta* failed to produce any significant spermatotoxic effect.[8]

A study conducted by the University of the Philippines suggest that aqueous and chloroform extracts from leaves of *A. vulgaris* have antihypertensive actions but have no significant effects on cardiovascular hemodynamics under basal conditions.[9]

Antimalarial Activity Although the tea from *Artemisia annua* is used to treat malaria, modern artemesinin preparations have been shown to be more effective. The antimalarial drug Coartem produced by Novartis stems from this plant. Knowledge of the antimalarial properties of *A. annua* was found in a Chinese medical book written on silk and unearthed from a tomb of the West Han Dynasty, which started around 200 B.C. The drug was developed by Chinese military scientists in the 1970s to treat soldiers suffering from malaria in Vietnam. Novartis struck a deal with the Chinese in the early 1990s to buy the rights to Coartem. Artemisinin drugs are extensively used in Southeast Asia, and increasingly in Africa.[10] There also exists a charity called Anamed which trains people in the Tropics to cultivate *Artemisia annua* and to employ their harvest in the form of a tea to treat malaria and other diseases.

In an open, randomized, controlled pilot trial conducted by the German Institute for Medical Mission, traditional tea preparations of *A. annua* resulted in a quick resolution of parasitaemia and of clinical symptoms. After seven days of medication, cure rates were on average 74 percent for the *Artemisia* preparations compared with 91 percent for quinine. The *Artemisia* groups, however, had high recrudescence rates. As a result, researchers could not recommend the use of *A. annua* as an alternative to modern antimalarials. Due to its rapid resolution of parasitaemia and clinical symptoms, the scientists concluded that *A. annua* deserved further investigation.[11]

In a study conducted by Virtual Campus Rhineland-Palatinate in Germany, Artesunate, a semi-synthetic derivative of artemisinin, the active principle of the Chinese herb *A. annua*, revealed remarkable activity against multidrug-resistant *Plasmodium falciparum* and *P. vivax* malaria.[12]

In a study conducted by Hopital Nebobongo in the Congo, five malaria patients who were treated with *Artemisia annua* tea showed a rapid disappearance of parasitaemia within 2 to 4 days. An additional trial with 48 malaria patients showed a disappearance of parasitaemia in 44 patients (92 percent) within 4 days. Both trials showed a marked improvement of symptoms. In our opinion, these results justify further examinations of the antimalarial effect of *Artemisia annua* preparations.[13]

Hepaprotective and Antioxidative Activity In an animal study conducted by Bahauddin Zakariya University in Pakistan, the hepatoprotective activity of the aqueous-methanolic extract of *Artemisia maritima* was demonstrated against acetaminophen and carbon tetrachloride-induced hepatic damage.[14] A study conducted by the Chemistry Department, Faculty of Science, Beni-Suef, Egypt, also suggested that *Artemisia maritima* acts as both a hepaprotective and antioxidant agent.[15]

Anticancer Activity Artemisinin induces apoptosis in human cancer cells. *Artemisia annua* has also been shown to possess anticancer properties. It is said that it has the ability to be selectively toxic to breast cancer cells and some forms of prostate cancer. There have also been some exciting preclinical trials against leukemia, and other cancer cells.[16] Studies have shown that Artemisinin is most active against leukemia and colon cancer cell lines. Its toxicity was also shown to be in line with those of established antitumor drugs.

Due to its promising results and low toxicity, Artemisinin may be a promising novel candidate for cancer chemotherapy.[17]

Wormwood Notes

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Glossary of Technical Terms

While this glossary may adequately define some of the technical terms employed in the encyclopedia, it is intended merely to supplement a good medical or scientific dictionary.

Adaptogen: Increase the body's resistance to physical, biological, emotional and environmental stressors.

Adjuvant: Agents which modify the effect of other agents while having few if any direct effects when given by themselves.

Abortifacient: Causes abortion.

Abrasive: Causing abrasion.

Allergen: Produces an allergic reaction.

Alkalizing: Neutralizes acids.

Alopecia: Baldness; an absence of normal body hair.

Alterative: Improves vitality by improving breakdown and excretion of waste products; a medicinal substance that gradually restores health.

Amenorrhea: The absence or suppression of menstruation.

Amoeba: A single-celled protozoan that is widely found in fresh and salt water. Some types of amoebas cause diseases such as amoebic dysentery.

Analgesic: Relieves pain.

Anaphylaxis: A rapidly progressing, life-threatening allergic reaction.

Angiogenesis: A physiological process involving the growth of new blood vessels from pre-existing vessels.

Anodyne: Relieves pain.

Anaphrodisiac: Represses sexual desire.

Anesthetic: Causes local or general loss of sensation.

Anodyne: A pain-relieving medicine, milder than analgesic.

Anthelmintic: An agent which is destructive to parasitic intestinal worms; vermifuge.

Anthemorrhagic: Prevents, reduces or halts hemorrhage.

Antiallergenic: Helps prevent or combat allergies.

Antianaphylaxis: Allergic reaction. In severe cases, this can include potentially deadly anaphylactic shock.

Antiangiogenic: Of or relating to a naturally occurring substance, drug, or other compound that can destroy or interfere with the fine network of blood vessels needed by tumors to grow and metastasize.

Antiarrhythmic: An agent alleviating cardiac arrhythmias

Antiarthritic: Prevents or relieves arthritis.

Antibacterial: Destroys or hinders the growth of bacteria.

Antibilious: An herb that combats biliousness, a group of symptoms consisting of nausea, abdominal discomfort, headache, constipation, and gas.

Antibiotic: Destroys or inhibits growth of microorganisms.

Anticandidial: Prevents or relieves Candida or vaginal yeast infection.

Anticarcinogenic: A source of the prevention, or delay of the development of cancer.

Anticolic: Prevents or relieves colic or abdominal pain.

Antidiarrheal: Prevents or relieves diarrhea.

Antifertility: Contraceptive: capable of preventing conception or impregnation.

Antigenotoxic: Protects against carcinogens, specifically those capable of causing genetic mutation and or contributing to the development of tumors.

Antihemorrhagic: Prevents or combats hemorrhage or bleeding.

Antihepatotoxic: A substance with protects the liver from toxins, or clears toxins from the liver; a liver detoxifier

Antihydrotic: A substance that reduces or suppresses perspiration.

Antihypertensive: Reducing or controlling high blood pressure.

Anti-infective: Combats infection.

Anti-inflammatory: Reduces inflammation.

Antimicrobial: A substance that kills or inhibits

the growth of microbes such as bacteria (antibacterial activity), fungi (antifungal activity), viruses (antiviral activity), or parasites (antiparasitic activity).

Antimutagenic: Inhibits mutation.

Antioxidant: Prevents or slows the deterioration of cells by oxidization.

Antiparasitic: Prevents or destroys parasites.

Antiproliferative: Counteracting a process of proliferation.

Antipruritic: Prevents or relieves itching.

Antipyretic: An agent effective against fever.

Antirheumatic: Prevents or treats rheumatism.

Antiscorbutic: Combats scurvy or vitamin C deficiency.

Antiseptic: Prevents or controls infection; prevents the growth of germs.

Antispasmodic: Prevents or reduces spasms or tension, especially involuntary muscle spasms.

Antithrombotic: Prevents blood clots from forming in blood vessels, particularly inside the brain.

Antitumor: Prevents or combats tumors or cancers.

Antiurolithiatic: Prevent the formation of stones in the kidney, bladder, and urethra.

Antiviral: An effective agent inhibiting a virus.

Anxiolytic: A drug prescribed for the treatment of symptoms of anxiety.

Aperitive: Stimulates the appetite for food.

Aphrodisiac: Promotes sexual excitement.

Aphthous: A small sensitive painful ulcer crater in the lining of the mouth.

Apoptosis: Process of suicide by a cell in a multicellular organism.

Aperient: A mild laxative; causes a gentle bowel movement.

Aromatic: Agents which emit a fragrant smell and produce a pungent taste. Used chiefly to make other medicines more palatable.

Astringent: Precipitates proteins from the surfaces of cells, causing contraction of tissues; forms a protective coating, and reduces bleeding and discharges.

Atherogenesis: The process of forming atheromas, plaques in the inner lining (the intima) of arteries.

Atherosclerosis: Hardening of the arteries.

Atrophy: Wasting away of any part, organ, tissue or cell.

Bacillus: Any rod-shaped bacterium.

Bactericidal: A substance that kills bacteria and, preferably, nothing else. Bactericides are either disinfectants, antiseptics or antibiotics.

Bitter: Stimulates the flow of saliva and the secretion of digestive juice, improving appetite and aiding the process of digestion.

Bronchial: Relating to the air passages in the lungs.

Bronchocele: An indolent swelling of the thyroid gland; goitre; tracheocele.

Bronchodilator: Dilates the lungs.

Bursitis: Inflammation of a bursa, often associated with pain and swelling. Most frequently occurs near shoulder, elbow or hip joints.

Calculi: Stones or solid lumps such as gallstones.

Calmative: An agent with mild sedative or calming effects.

Carcinogenic: Causes cancer.

Cardioactive: Affecting the heart.

Cardio-inhibitory: Depress cardiac function by decreasing heart rate (chronotropy) and myocardial contractility (inotropy), which decreases cardiac output and arterial pressure.

Cardiotonic: Substance that strengthens or regulates heart metabolism without overt stimulation or depression. It may increase coronary blood supply, normalize coronary enervation, relax peripheral arteries (thereby decreasing back-pressure on the valves), or decrease adrenergic stimulation.

Carminative: Relieves flatulence, colic, and digestive discomfort; a drug that removes flatus from the gastrointestinal tract.

Catharsis: A purging of the bowels.

Cathartic: Pertaining to catharsis.

Cattarrh: Inflammation of the mucous membranes with a discharge of mucus secretions; particularly from the upper respiratory tract. This has special reference to the air passages of the head and throat. For example: hayfever, rhinitis, influenza, bronchitis, pharyngitis, and asthma.

Cephalic: Referring to diseases affecting the head and upper part of the body.

Chelation: To remove a heavy metal, such as lead or mercury, from the bloodstream by means of a chelate, such as EDTA.

Chemopreventive: Inhibits, delays, or reverses carcinogenesis.

Chilblain: Inflammation, swelling, and itching of the ears, fingers, and toes produced by frostbite.

Cholagogue: An agent that increases bile flow to the intestines.

Cholesterol: A fatlike material, present in the blood and in most tissues, which is an important constituent of cell membranes, steroid hormones, and bile salts.

Cholinergic: Related to the neurotransmitter acetylcholine.

Chondroprotective: Compounds that stimulate chondrocyte synthesis of collagen and proteoglycans, as well as synoviocyte production of hyaluronan, inhibit cartilage degradation and prevent fibrin formation in the subchondral and synovial vasculature.

Circulatory stimulant: Dilates the blood vessels and increases blood flow.

Cirrhosis: Inflammation or an organ characterized by degenerative changes, particularly the liver.

Conjunctivitis: Inflammation of the conjunctiva or mucous membranes lining the eyelids and covering the anterior surface of the eyeball.

Cooling: A remedy, often based on bitter or relaxant herbs, that reduces internal "heat" or physiological hyperactivity.

Cordial: A stimulating medicine or drink.

Coryza: Nasal catarrh resulting from inflammation of the mucous membranes; common head cold.

Cystitis: Inflammation of the bladder due to infection, usually by *E. coli* bacteria transferred from the bowel; it is particularly common in the early stages of pregnancy, and attacks tend to recur. In men, cystitis is usually secondary to prostate problems, bladder tumors, bladder stones, or congenial abnormality of the bladder or urethra.

Cytopathogenicity: Of, relating to, or producing pathological changes in cells.

Cytoprotective: Cytoprotective agents (or "cell" protective agents) are medications used in the treatment of peptic ulcer disease (PUD) because they help protect the lining of the stomach and the upper small intestine (duodenum) to allow ulcer healing to occur.

Delirium tremens: An acute, psychotic state usually occurring during reduction or cessation of alcohol intake after a prolonged or copious intake of alcohol; characterized by symptoms such as tremors, hallucinations, or seizures. Requires immediate treatment; may be life threatening.

***Demodex folliculorum*:** A mite that infests hair follicles, contributing to a skin condition called rosacea.

Demulcent: Soothes and softens damaged, irritated, or inflamed tissues (especially of the digestive tract); a substance that soothes or softens the skin.

Depressant: Reduces nervous or functional activity.

Depurative: Promotes the elimination of waste products from the body; purifying or cleansing of the blood, detoxifying.

Dermatitis: Inflammation of the skin.

Dermatophyte: A parasitic fungus that infects the skin.

Detoxicant: Removes poisons (especially waste products) from the body.

Diaphoretic: Induces profuse perspiration, thus eliminating toxins and lowering fever.

Digestive: Stimulates digestion.

Diuretic: Increases volume of urine.

Diuresis: Abnormal secretion of urine.

Dropsy: *see* Edema

Dysentery: A group of intestinal disorders characterized by inflammation and irritation of the colon, with diarrhea, abdominal pain, and the passage of mucous or blood.

Dyslipidemia: An abnormal concentration of lipids or lipoproteins in the blood.

Dysmenorrhea: Painful menstruation.

Dyspepsia: Indigestion.

Dysuria: Any difficulty in urination, sometimes accompanied by pain.

Edema: Swelling from excessive accumulation of serous fluid in tissue.

Emetic: Causes vomiting.

Emmenagogue: A medicine that stimulates menstrual functioning.

Emollient: An agent that softens or smoothens the skin.

Enuresis: Involuntary urination.

Epidermophytosis: A disease (as athlete's foot) of the skin or nails caused by a dermatophyte.

Epididymides: A long, narrow, convoluted tube in the spermatic duct system that lies on the posterior aspect of each testicle and connects with the vas deferens.

Epigastric: Pertaining to the upper middle part of the abdomen, including the area over and in front of the stomach.

Epstein-Barr virus: A virus causing diseases ranging from mononucleosis to several kinds of cancer.

Errhine: Bringing on sneezing, increasing flow of mucus in nasal passages.

Estrogenic: Similar in effects to the hormone estrogen, which plays an important role in the development and functioning of female sexual organs.

Euphoric: Causing an increased sense of well-being.

Excitant: Causes stimulation.

Excoriation: An erosion or destruction of the skin by mechanical means, which appears in the form of a scratch or abrasion of the skin.

Expectorant: Encourages the expulsion of phlegm from the respiratory tract; an agent which liquefies sputum or phlegm.

Febrifuge: An agent that relieves or lowers fever.

Febrile: Related to fever.

Fibrinolysis: The process where a fibrin clot, the product of coagulation, is broken down. Its main enzyme, plasmin, cuts the fibrin mesh at various places, leading to the production of circulating fragments that are cleared by other proteinases or by the kidney and liver.

Flatulence: Excessive gas in the stomach and the alimentary canal.

Fungal: Caused by a fungus.
Fungicide: A substance that destroys fungi.
Furuncle: Boil; a painful nodule in the skin caused by inflammatory sequestration of staphylococci and core formation.
Galactofuge: Suppresses milk flow.
Galactogogue: Increases milk flow.
Genotoxic: Any substance that leads to chromosomal damage.
Germicidal: Destroys germs.
Gingivostomatitis: Gingivostomatitis is a viral infection of the mouth and gums that causes swelling and sores. It is common, particularly in children.
Grave's disease: Toxic goiter characterized by diffuse hyperplasia of the thyroid gland, a form of hyperthyroidism; exophthalmos is a common, but not invariable, concomitant.
Helminth: A worm classified as a parasite.
Hemoptysis: Coughing up blood from the lungs.
Hemostatic: An agent that checks bleeding.
Hepaprotective: Protects the liver.
Hepatic: An herb that promotes the well-being of the liver and increases the secretion of bile.
Hepatocarcinoma: Adult primary liver cancer.
Histological: Referring to histology, microscopical presentation of biological tissues.
Homocystinuri: An inherited disorder of the metabolism of the amino acid methionine, often involving cystathionine beta synthase. It is an inherited autosomal recessive trait, which means a child needs to inherit the defective gene from both parents to be affected. Also known as cystathionine beta synthase deficiency.
Hydragogue: Producing a watery discharge from the bowels; a drug which acts as a cathartic causing a watery evacuation of the bowels.
Hypercholesterolemia: Chronic high levels of cholesterol in the bloodstream.
Hyperglycemic: A condition characterized by elevated blood glucose levels.
Hyperinsulinemia: An endocrine disorder characterized by a failure of our blood sugar control system (BSCS) to work properly.
Hypertension: High blood pressure.
Hypertensive: Causing or marking a rise in blood pressure.
Hyperthyroidism: Overactive thyroid gland.
Hypertonia: Increased tightness of muscle tone.
Hypertrophy: The increase of the size of an organ or in a select area of the tissue.
Hypnotic: An agent that can induce hypnosis or sleep.
Hypoglycemic: A condition characterized by lower than normal blood glucose levels.
Hypolipidemic: Lowers cholesterol.
Hypotensive: Causing or marking a lowering of blood pressure.
Hypoglycemia: A deficiency of blood sugar marked by fatigue, restlessness, malaise, irritability, muscular weakness, mental confusion, sweating, and weakness.
Immune system: The body's defense mechanisms against infectious organisms and other foreign materials, such as allergens.
Immunomodulator: A drug used for its effect on the immune system.
Immunostimulant: Stimulating various functions or activities of the immune system.
Insecticidal: Destroys insects.
Intraperitoneal: Within the peritoneal cavity, the area that contains the abdominal organs.
Keratitis: Inflammation of the cornea.
Lactation: Secretion of milk by the mammary glands, which usually begins at the end of pregnancy.
Lacto-dyspepsia: Abdominal discomfort caused by milk. Particularly common in babies.
Lactogogue: Stimulates the production of milk.
Larvicidal: Destroys larvae.
Laxative: Encourages bowel movements.
Lenitive: Assuasive, emollient; remedy that eases pain and discomfort; alleviative; moderating pain or sorrow.
Leucorrhea: Discharge of white mucous material from the vagina; often an indication of infection.
Leukoplakia: A condition that involves the formation of white leathery spots on the mucous membranes of the tongue and inside of the mouth.
Ligand: An ion, a molecule, or a molecular group that binds to another chemical entity to form a larger complex.
Lipids: Fatlike substances, such as cholesterol, which are important structural materials in the body, and present in most tissues (especially the blood).
Lochial: Relating to lochia or post-partum vaginal discharge, containing blood, mucus, and placental tissue or menstrual blood.
Lumbago: A non-medical term signifying pain in the lumbar region. Archaic term meaning back pain.
Lymphedema: Chronic swelling of an arm or leg due to a blockage of the lymph vessels.
Lymphocyte: Any of the nearly colorless cells found in the blood, lymph, and lymphoid tissues, constituting approximately 25 percent of white blood cells.
Macular degeneration: A medical condition predominantly found in elderly adults in which the

center of the inner lining of the eye, known as the macula area of the retina, suffers thinning, atrophy, and in some cases bleeding.

Menstruation: The "period" in the menstrual cycle, occurring at approximately monthly intervals, in which the lining of the womb breaks down and is discharged as blood and debris.

Micturition: Urination.

Mucilaginous: An agent characterized by a gummy or gelatinous consistency.

Muscarinic receptor: Membrane-bound acetylcholine receptors that are more sensitive to muscarine than to nicotine.

Myelocytic leukemia: A malignant neoplasm of blood-forming tissues; marked by proliferation of myelocytes and their presence in the blood.

Myocardial infarction: Heart attack.

Narcotic: An addicting substance that reduces pain and produces sleep.

Nasopharyngeal carcinoma: A poorly differentiated carcinoma that may appear at any site in the upper respiratory tract, but most commonly, in the lateral wall of the nasopharynx around the ostium of the Eustachian tube — the fossa of Rosenmulle.

Nematocidal: Destroys nematodes (unsegmented worms some of which are disease-causing parasites, such as hookworm).

Neoplasm: A tumor, benign or malignant; an abnormal growth of tissue.

Nephritis: Inflammation of the kidneys.

Nerve tonic: A remedy that supports the proper functioning of the nervous system. Also called nervine.

Nervine: An agent that affects, strengthens, or calms the nerves.

Neuralgia: A sharp, shooting pain along a nerve pathway.

Nutritive: An herb which provides nutrition.

Odontalgic: Used for the treatment of toothache.

Oleolite: A medicine with an oily base.

Onychomycosis: The invasion of the nail plate by a dermatophyte, yeast or nondermatophyte mold.

Ophthalmic: Heals disorders and diseases of the eye.

Orexigenic: Stimulates appetite.

Osteoarthritis: Degenerative arthritis; a joint disease caused by the breakdown and loss of the cartilage of one or more joints.

Otitis: Inflammation of the middle ear.

Oxytocic: A medicinal drug used to hasten parturition or stimulate uterine contractions.

Papilloma: A benign epithelial tumor.

Pathogen: A microorganism that causes disease; a biological agent that causes disease or illness to its host.

Pectoral: Pertaining to the chest or breast; an expectorant which relieves respiratory tract disorders.

Periodontosis: A degenerative disturbance of the periodontium, characterized by degeneration of connective-tissue elements of the periodontal ligament and by bone resorption.

Peristalsis: Waves of involuntary muscle contraction in the digestive tract that push the contents along.

Peritumoral: Around the tumor.

Phagocytes: Cells that ingest (and destroy) foreign matter, e.g., microorganisms or debris, via phagocytosis, i.e., a process by which these cells ingest and kill offending cells by cellular digestion. They are extremely useful as an initial immune system response to tissue damage.

Phagocytic: Pertaining to or produced by phagocytes.

Phlegm: Thick mucus, secreted by the walls of the respiratory tract.

Photodermatitis: A condition in which the skin becomes sensitized to a certain substance that, when exposed to sunlight, causes dermatitis.

Phytotherapy: Treatment of diseases using plants.

Piscicide: A substance which is poisonous to fish.

Plasmolysis: The shrinking and separation of the cytoplasm from the cell wall due to exosmosis of water from the protoplast.

Platelet aggregation: The clumping together of platelets in the blood.

Pleurisy: An inflammation of the pleura, the lining of the pleural cavity surrounding the lungs, which can cause painful respiration and other symptoms; also known as **pleuritis**.

Postprandial glycemia: A rise in blood sugar after consuming a meal.

Poultice: A moist, usually warm or hot mass of plant material applied to the skin, or with cloth between the skin and plant material, to effect a medicinal action.

Productive coughing: Resulting in expulsion of phlegm.

Prokinetic: Agents used to treat heartburn caused by gastroesophageal reflux disease.

Prophylactic: Agent which wards off disease.

Prostration: Exhaustion.

Ptyalism: Excessive flow of saliva.

Puerperal: After childbirth.

Pungent: Having an acrid smell or strong, bitter flavor.

Purgative: A substance that evacuates the bowels; a cathartic; an agent that causes cleansing or watery evacuation of the bowels, usually with griping (painful cramps).

Pyorrhea: The advanced stage of periodontal disease in which the ligaments and bones that sup-

port the teeth become inflamed and infected. It is usually a result of gingivitis, a periodontal disease that infects the gum through plaque leading to the formation of a pocket between the teeth that trap the plaque.

Refrigerant: Relieves fever and thirst; a cooling remedy; lowers body temperature.

Rejuvenative: Restores vitality.

Relaxant: Relaxes tense, overactive tissues.

Resolvent: An agent that causes dispersion of inflammation.

Restorative: Revives health or strength; causing a return to health or to consciousness; a remedy or substance that is effective in the regaining of health or strength.

Rhinitis: Inflammation of the nasal mucous membranes.

Rhizomes: Stem, usually underground, often horizontal, typically non-green and root-like in appearance but bearing scale leaves and/or foliage leaves.

Rubefacient: Causes reddening of the skin, thus increasing blood flow and cleansing the tissues of toxins.

Schistosomiasis: A parasitic disease caused by several species of flatworm; also known as bilharzia.

Sciatica: Irritation of the sciatic nerve resulting in pain or tingling running down the inside of the leg.

Scrofula: Tuberculosis involving the lymph nodes of the neck, usually occurs in early life. Now very rarely seen.

Sedative: Reduces anxiety and tension; a tranquilizer; an agent allaying irritation or excitement; quieting; calms the nerves, allays excitement, induces relaxation, and is conducive to sleep.

***Shigella dysenteriae*:** A highly communicable, strictly human pathogen spread by the fecal-oral route.

Sialogogue: An agent that stimulates secretion of saliva.

Somnolence: Drowsiness; a state of near-sleep, a strong desire for sleep, or sleeping for unusually long periods.

Soporific: Induces drowsiness or sleep.

Spasmogenic: Causing spasms.

Spasmolytic: Checking spasms or cramps.

Spermicidal: Destroys spermatozoa.

Sternutatory: Tending to cause sneezing.

Stimulant: Increases physiological activity.

Stomachic: A medicine which aids functional activity of the stomach.

Styptic: Contracting the tissues or blood vessels; astringent; tending to check bleeding by contracting the tissues or blood vessels; hemostatic.

Sudorific: Herbs that cause heavy perspiration.

Synergistic: Two or more compounds acting together in such a way that the total effect is greater than if each compound acted alone.

Synovitis: Inflammation of a synovial membrane, which line those joints which possess cavities (synovial joints).

Tenesmus: A physiological condition by which one has trouble urinating or especially defecating. It is marked by painful spasms of the anal sphincter, occurring with an urgent desire to defecate and an inability to do so.

Tenifuge: An agent that causes the expulsion of tapeworms.

Thrombotic: Forming a clot of coagulated blood in blood vessel or in the heart that remains at the site of formation, impeding blood flow.

Thrush: An infection of the mouth caused by the candida fungus, also known as yeast. Candida infection is not limited to the mouth; it can occur in other parts of the body as well, causing diaper rash in infants or vaginal yeast infections in women. Although it occurs most commonly in babies and toddlers, older adults, and people with weak immune systems, thrush can affect anyone.

Thyroid: Relating to the thyroid gland, near the base of the neck, which controls metabolism and growth.

Tinnitus aurium: Ringing in the ear.

Tonic: Improves physiological functions and sense of well-being; an ambiguous term referring to a substance thought to have an overall positive medicinal effect of an unspecified nature.

Topical: Applied to the body surface.

Torpor: Listlessness; inactivity resulting from lethargy and lack of vigor or energy.

Toxic: Harmful or poisonous.

Toxicity: The degree of strength of a toxic substance.

Tuberculostatic: Arresting the tubercle bacillus (the germ responsible for causing tuberculosis).

Tumorigenesis: A collection of complex genetic diseases characterized by multiple defects in the homeostatic mechanisms that regulate cell growth, proliferation and differentiation.

Ureter: Thin walled tube that drains urine from the kidney to the bladder.

Urethritis: Inflammation of the urethra caused by infection.

Uterine: Pertaining to the uterus.

Uterotonic: Having a positive effect on an unspecified nature of the uterus.

Vaginosis: Very common vaginal infection characterized by symptoms such as increased vaginal discharge or itching, burning, or redness in the genital area.

Vasoconstrictor: An agent that causes blood vessels to constrict, or narrow the caliber.

Vasodilator: An agent that causes blood vessels to relax and dilate.

Vermifuge: Destroys of expels intestinal worms.

Viral: Caused by a virus.

Virus: A disease-causing organism, capable of replication only within the cells of an animal or plant.

Vulnerary: An agent or herb used for healing wounds, fresh cuts, etc., usually used as a poultice.

Vulvovaginitis: An inflammation of the vagina and vulva, most often caused by a bacterial, fungal, or parasitic infection.

Warming: A remedy, often based on spicy, pungent herbs, that dispels internal "coldness" or hypoactivity, and increases vitality, mainly by stimulating digestion and circulation.

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